POVERTY IN THE PHILIPPINES

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This is to certify that the thesis is my original work. I also attest that the contents of this thesis were independently written and all outside sources have been acknowledged.

Ms. Rena O. dela Cruz-Doña

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Poverty in the Philippines
Abstract

Poverty remains as a formidable challenge for the Philippine Government. Despite the Government's various development plans, policies and programs from 1962 through to 1997 that addressed poverty, the number of Filipinos living below the poverty line is still substantial.

In the attempt to gain a deeper understanding of this policy problem this thesis is concerned with considering various aspects - but only aspects - of poverty in the Philippines. This is done by considering a range of pertinent issues that provide results that add to our understanding of poverty in the Philippines.

The thesis is broken up into three parts. In Part I the discussion is concerned with determining if the alleviation of poverty is seen as being an issue of major social importance in the Filipino community. This issue is explored by determining if diverse groups of Filipinos could arrive at a consensus in the selection of a principle of distributive justice under conditions of economic uncertainty. The experimental results presented indicate the remarkable result that a representative sample, drawn from the Filipino community, can agree unanimously on a single system of justice in distribution - a system that sets as a priority the elimination of poverty. These results have implications for political philosophy, social choice theory and policy implementation in the Philippines.

In Part II some of the possible causes of poverty in rural Philippines are considered. Chapter 3 is concerned with the analysis of provincial data to determine what factors cause the levels of household income per capita and poverty to vary across provinces in the Philippines. In contrast, the contents of Chapter 4 provide an analysis of information provided by detailed surveys carried out in two diverse villages. These two chapters provide new results and confirm other results scattered throughout an extensive relevant literature. Broadly these results suggest that the alleviation of poverty will require that

appropriate policy action needs to be mounted simultaneously on a number of relevant fronts.

Part III is concerned with determining some of the possible consequences that flow from poverty in the Philippines. In Chapter 5 use is made of provincial data. There it is indicated, for instance, that the reduction of poverty probably needs to be part of any program that attempts to reduce infant and child mortality rate, and the total fertility rate. In Chapter 6 attention turns to consider the influence of poverty, after allowing for other relevant factors, on the age-adjusted height for age of young children - a variable which is a sensitive indicator of the level of well-being for a community. Micro data is employed. It is shown that poverty, widely redefined (to include not just household income measures but also the level of education in the family and a range of other considerations), has a clear influence on the age-adjusted height for age of young children.

In the concluding chapter, Chapter 7, the major findings are presented and policy implications are drawn from these findings.

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Chapter 1

Introduction

1.1 A Brief Overview of the Poverty Situation in the Philippine Context

Poverty poses a formidable challenge to the Philippine Government. In a span of almost four decades (1962-1997) despite the government's various development plans, policy measures and public investment programs to alleviate poverty the number of people in the Philippines living below the poverty line remains substantial.[1] The latest official statistics show that in absolute terms the size of the population that received incomes at or below the poverty line increased from 26.2 million in 1985 to 27.2 million in 1997 (NSCB 1996: 21 and the NSCB Technical Working Group on Income Statistics 1997: 14). The former figure represents 49.3 and the latter 40.6 per cent of the total population of the country, respectively. A higher level of poverty (though less recent) was cited by the World Bank. The proportion of the population

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[1] The poverty line is the minimum income per annum (or month) which would enable a family to finance their essential food and non-food requirements. Computation of the food line is based on a nutritional requirement of 100 per cent of the per capita recommended dietary allowances (RDA) for protein and energy and 80 per cent of the per capita RDA for vitamins, minerals, and other nutrients as recommended by the Philippines' National Nutrition Council (Marquez and Virola 1994: 7). Non-food needs, on the other hand, are based on the ratio of the basic non-food expenditures to total expenditures taken from the Family Income and Expenditures Survey performed by the National Statistical Office (Marquez and Virola 1994: 9). Basic non-food expenditures include fuel, light and water, transportation and communication, household operations, personal care and effects, clothing, footwear and other wear, education, medical care, non-durable furnishings, rent and rental value of occupied dwelling unit, house maintenance and minor repairs, and taxes paid (NSO 1994 and 1996).

living below the poverty line was 52 per cent in 1985 and 54 per cent in 1991 (World Bank 1998: 197).

That said, one factor that has contributed to the apparently slow decline in this percentage is that the Philippine economy suffered a slump in 1985 arising mainly from political instability. However, from 1993 through to the late 1997, when the Asian economic crisis struck, the economy showed signs of recovery (NEDA 1986 and NSCB 1998).

Within this context the alleviation of poverty has been a major concern of the Philippine Government. One reason why this is so is because, as indicated below, leaders in the Government recognise that the comparative high level, and any increase in this level of poverty in the community, may be a potential cause of political unrest and social instability. As the poor increasingly lose confidence in their government to improve their plight they may well begin to support groups opposed to the governing administration. In fact, to some extent this occurred in the 1970s and the 1980s in that the insurgency movement in the Philippines grew and gained the support of the poor - especially the rural peasantry.[2] In response to this growth in the insurgency movement, in the 1990s various groups - such as the Catholic Church, opposition parties, media, academics and the environmentalists - lobbied the Philippine Government to assist the poor.[3] It is possible, they argued,

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2 For a discussion on the rural poor and the insurgency movement see, for instance, Santos and Lee (1989), Burton (1989), Putzel (1992), Bulatao (1992) and Kerkvliet (1995).

3 These groups argue that it is the government's responsibility to provide, amongst other things, programs that create jobs, basic education, adequate nutrition and health care, and low-cost housing (for example, Profile Jaime Ongpin: not Running, Now or Ever 1984: 9, Profile Salvador Laurel: no Plans, he says, for '87 1984: 6, Diokno 1987: 78-80, and Villegas 1993: 59). Apart from the government, the complementary role of private volunteer associations in the provision of health, nutrition, and educational programs also has been emphasised by Villegas (1992: 90 and 1993: 60).

that if poverty is not addressed by the Government a rebellion may erupt resulting in a radical shift in the political system[4]. This view was given added credence when President Ramos, on the occasion of the tenth anniversary of the People's Power Revolution (of 1986), stated that if the mitigation of poverty was not addressed, then this prevalence of poverty may be the central cause of the next revolution in the Philippines (Ramos: Poverty Will Spark New Revolution 1996: 1).

That various sections of Philippine society believe that this is the central reason why poverty should be alleviated - which is that its alleviation will reduce the risk of social and political instability - is a view also reflected in parts of the study reported in Chapter 2 in Part I of this thesis. Of more importance, however, this study sets out to determine if, indeed, the alleviation of poverty is a priority amongst members of the Philippine community. Determining if this is the situation is of importance from the perspective of the successful implementation of poverty alleviation policies. Specifically, if the alleviation of poverty does receive wide support, then this should increase the success of poverty alleviation policies compared to the instance where this level of support is absent.

As for the empirical results of the study reported in Chapter 2, they indicate that the elimination of destitution and poverty is a priority for a community that is faced with considerable economic uncertainty and the potential for social and political chaos. As argued later, these general circumstances facing a representative community are not dissimilar to

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4 This view was also articulated by an old man in a fishing village in Lake Taal in Laguna, Philippines (Pye-Smith 1997: 27) who suggested: 'What we need is a revolution. We need a new system. The whole country depends on peasants and fishers for food.' Villegas (1992: 218) states that some critics of the Aquino administration claimed that democracy in the Philippines was 'in deep trouble' because of worsening mass poverty and increased unemployment.

those that are pervasive in the Philippines. In addition, the findings reported in Part I and as pointed out there have some important implications that go well beyond just understanding the economic, social and political environment to be found in the Philippines.

Another reason why the Government is concerned about the level of poverty in the Philippines is that its prevalence may hinder further economic development.[5] Thus, and related to the previous remarks, the maintenance of political and social stability presumably would contribute towards increasing the rate of economic development. (Empirical evidence, based on cross-country data, supporting the assertion that has just been made is to be found in Perotti (1996).) This is not the only reason, however, why the prevalence of poverty may hinder economic development. Since poor households generally have few or no assets, little or no education, inadequate nutrition, poor health and a relatively large number of children, they therefore have comparatively little capacity to contribute to the economic and social development of the community as a whole. Thus, without the capability of these households being raised such that they can take greater advantage of economic opportunities that are available, the rate of economic and social development of the community will tend to be impaired.[6,7] (This line of

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5 Economic development refers not only to the growth of per capita income but also to improvements in the use and actual performance of the factors of production (such as land, labour, capital, and technology). See, for instance, Gillis et al. (1992: 8-9) and Ray (1998: Chapter 2) on this point.

6 On the capability approach to economic development see Sen (1986 and 1987). Also see the various essays in Nussbaum and Sen (1993).

7 It is possible that because they are mostly uneducated, unskilled and unhealthy, poor people tend to reside in agricultural areas or work in industries that require minimal skills and capital requirements and with low labour productivity (Balisacan 1996: 457). Another reason why the poorest of the poor cannot take advantage of the market is their lack of access to technology or credit (Villegas 1993: 178). This argument arises indirectly in Chapter 4 in the main text.

argument also receives support from some of the empirical evidence to be found in Perotti (1996).) The question, however, is the following: how is the capacity of poor households to be raised?

Attempting to answer this sort of question is what motivates the analysis presented in Part II of this thesis. Specifically, the discussion in Part II is concerned with attempting to determine, in some detail, what factors contribute to causing well-being poverty - more will be said on this term soon - in the Philippines and in rural Philippines in particular. The reason for addressing this issue is that to determine how to design poverty alleviation programs that are reasonably effective it is essential to possess a reasonably deep understanding of the causes of poverty. That said, while I do not claim that the analysis provided in Part II has reached the depth of understanding of poverty in the Philippines that may be regarded as completely satisfactory, nevertheless it is suggested that the line of research adopted is going in the right direction.

As for the term well-being poverty, it is defined as the measure of poverty that takes into account not only the real incomes received by households but also the life expectancy attained and the level of education received by less well off members of the community. It is, above all, a measure of poverty that implicitly takes into account the capability of individuals to function effectively in the community and take advantage of the economic and other opportunities available in the community.

This well-being view of poverty in the Philippines is encountered throughout this thesis. For the present it is noted that the level of well-being poverty will rise even further (if nothing is done to mitigate it) since

well-being poor people tend to experience higher rates of malnutrition and infant and child mortality. (Relatively high rates of incidence of malnutrition and infant mortality rates have been observed in the less developed regions of the Philippines (Balisacan 1996: 521-3).) If this is so then this will impede a poor household in its attempt to maintain, let alone increase, its level of well-being. In addition, poor households also tend to degrade the environment in their attempt to maintain their levels of subsistence. Premature cutting of trees and over-cultivation of land by poor people often occur (Department of Environment and Natural Resources, 1990: 164-8). (Within the general theory of economic development, this theme is developed in some detail in Dasgupta (1993 and 1995) and Dasgupta and Mäler (1995).) Thus again the prevalence of well-being poverty tends to impede economic development.

The issues raised in the previous paragraph provide the motivation for the discussion in Part III of this thesis. In that discussion the main emphasis is on determining in what ways a reduction in the amount of resources available to members of a community influences the capacities of these individuals in this community to function effectively. Thus, for instance, I consider what factors influence the height for age of young children and how changes in the level of well-being poverty influence infant and child mortality rates. The discussion in this part of the thesis indicates that the high level of well-being poverty in the Philippines has the consequence of stunting the lives of poor individuals, if not bringing these lives to a premature end. This stunting of the physical capabilities of these people no doubt also makes it that more difficult for these individuals to develop their capabilities to a higher level and, thereby, achieve a higher level of well-being.

To conclude these introductory remarks, attention returns to the matter of the definition of poverty. To begin with it is noted that the very definition and measures of poverty employed by the public authorities are likely to influence the very type and form of poverty-alleviation policies adopted. To explain, let a government adopt - as past governments of the Philippines have done - an income-only measure of poverty that implies that an individual is considered as being poor only if their annual incomes or expenditures fall below a certain income level - the poverty line - set by the government.[8] The use of this definition almost certainly caused past Philippine Governments (prior to the Ramos Administration), in their attempt to reduce the level of poverty, to concentrate on increasing the incomes of the rural poor. This narrow income-only approach to poverty alleviation, however, may well achieve comparatively limited results if no allowance is made for the possibly wide range of factors that cause households to be poor.

This potential policy mistake is less likely to occur, however, if a much more inclusive well-being measure of poverty is used - a measure that includes variables that attempt to reflect the capacity of individuals to be able to participate more effectively in the institutions and operation of the community. Part of the reason for doing so is that, as the previous discussion indicated and as the subsequent discussion will indicate in far more detail, raising the capacities of individuals is essential if at least the incomes for these individuals are to be raised and if the adverse consequences of poverty are to be avoided - adverse consequences that make it more difficult to mitigate poverty. That being the case, it follows

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8 There are various studies on the measurement of poverty lines in the Philippines from 1965 through to 1985 using various methodologies and definitions. See Balisacan (1994: 447). On the methodological issues in estimating poverty, see for instance Mangahas (1986 and 1993), Martina (1998a) and the references cited there.

that a well-being measure of poverty will signal to the authorities that to alleviate poverty in the community the attack has to be mounted on a number of fronts simultaneously - not only on the front directed at raising the level of incomes for less well off households.[9],[10]

Expressing this line of argument slightly differently, it should be recognised that the task of alleviating poverty is a complex issue. This complexity should be reflected in the design of poverty alleviation policies and how they are implemented.[11] To assess these policies will require a well-being measure of poverty of the form indicated earlier. This general perception of how poverty should be measured and how poverty-alleviation policies should be conceived is very much influenced by the arguments developed in the various chapters that make up Parts II and III of this thesis.

1.2 Objectives of the Study Set Out in More Detail

As just indicated, the topic of poverty in the Philippines is a complex issue. It is not possible, therefore, to discuss all facets of poverty in the Philippines in a thesis. Consequently this thesis will concentrate on a range of major issues, or themes, that will allow a contribution to be made to our understanding of this broad topic. This remark implies that there is no central hypothesis to be tested throughout

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9 Various measures of the level, and changes in the level of well-being poverty are discussed, for instance, in Martina (1996) and Qizilbash (1997).

10 Part of the discussion in Chapter 4 deals with the matter, within a particular context, of the measurement of community well-being. Various relevant references are cited there.

11 This theme is developed in great detail in Martina (1998b and 1998c).

this thesis. Rather this study addresses a range of pertinent issues, or themes, that provide results that add to the existing literature dealing with poverty in the Philippines, and poverty in developing countries in general. These themes are reflected in the following more detailed statement of the structure of this thesis.

Part I of the thesis focuses on:

(i) determining how Filipinos perceive the broad issue of economic justice, what system of justice pluralistic groups of Filipinos would agree to under conditions of uncertainty, and of more importance, whether these diverse groups can agree, widely, on a system of justice in the distribution of incomes and endowments within the community. The results derived from this study provide considerable insights into the matter of under what circumstances a community is likely to reach, or not reach, wide agreement on issues of social importance. Above all it indicates that, in certain reasonably realistic circumstances, diverse groups of individuals in the Philippines can agree unanimously (or nearly so) that the elimination of poverty is a social objective, and that this objective should receive priority. As indicated earlier, the importance of this result, with respect to the implementation of poverty-alleviation policies in the Philippines, is that these policies will receive wide support in the community. Without this level of support effective implementation of such policies would be that more difficult.

In Part II of the thesis attention turns to the matters of:

(ii) analysing the causes of variations in the level of the incidence of poverty, household incomes and per capita income across the provinces in the Philippines, and

(iii) examining some of the characteristics of rural poverty in the Philippines and identifying some of the possible links between formal education, credit and the use of forest resources on the level of well-being of the rural poor.

The final part, Part III of the thesis, is directed at:

(iv) assessing some of the demographic consequences associated with varying the level of poverty - more specifically, the possible effects of poverty on the rates of infant mortality, child mortality, fertility, morbidity and net migration, and

(v) identifying some of the possible factors that may influence the health status of young children in two Filipino villages.

Each one of these themes in Parts II and III is concerned in particular with considering the implications of the research findings for the design of more effective relevant policies that improve the well-being of poor people. It is also indicated at various stages in this thesis where there seems to be scope for further research.

1.3 Scope and Limitations of the Study

In view of time, financial and logistic constraints, the scope of the field work that generated the relevant information made use of in this

study was limited in emphasis, range and period of coverage. Since poverty in the Philippines has always been predominantly rural,[12] the emphasis of the study was on rural poverty.

While most of the data that were used in the study were from the period 1991 to 1997, the chapters also looked at major government policies, plans and programs from 1962 through to 1998 that may have affected the rural poor.[13] The author would have liked to have made use of time-series data to capture the dynamics of poverty across time. Unfortunately, however, statistical data on the economic and social variables required for analysis using the same sample of households were not available, or if these variables were available, they were not in sufficient detail. Thus, the absence of time-series data on the economic and social variables that were studied may be considered a limitation of this research. Generating relevant time series data sets therefore is a potential area for future research.

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12 In 1961, rural households made up about 66 per cent of all poor households (Balisacan 1992). Nearly three decades later, this figure declined marginally to 62 per cent (Balisacan 1992). For a discussion of the extent and magnitude of rural poverty in the Philippines, see for instance, Quisumbing and Cruz (1986), Sajor (1993), de Dios (1993) and Balisacan (1996).

13 Between mid-1962 to mid-1998, the Philippine Government was under four administrations, namely: Macapagal (1962-1965); Marcos (1966-1986); Aquino (1986-1992); and Ramos (1992-1998). The first medium-term (Fiscal Years 1963-1967) integrated socio-economic plan for the country was approved only in 1963 by the Philippine Congress under the Macapagal administration. Prior to 1963 the Government's annual development plans were not submitted by the executive branch of government for congressional approval and thus gained very little political support. The year 1998 was chosen as the end-point of the study because this was the last year of the Ramos Government, under whose administration several major poverty alleviation programs were launched. This was also the year that a new President (Estrada), who ran under a pro-poor platform, was elected.

1.4 Methodology Used In the Study

The data used in the chapters were derived from primary and secondary sources. Primary data were generated from the results of game-theoretic experiments, focus group discussions and informal interviews carried out while I was performing fieldwork in the Philippines for one year, from late November 1996 to late November 1997. Secondary data sources include development plans, policies, programs and statistical publications of the Philippine government as well as books, journals and thesis.

Both quantitative and qualitative methods were used in analysing poverty in the Philippines. Quantitative methods included the formulation of regression models, the estimation of these models and the application of various statistical tests such as t-tests and F-tests. Without time-series data, available cross-section data sets were used to estimate these models.

Focus-group discussions were the main source for the use of qualitative methods. Another qualitative technique used was to conduct interviews with key informants to cross-check the information gathered from official reports concerning two villages that were studied in detail. Detailed discussions of the relevant methods employed to provide relevant data sets are contained in the relevant chapters.

As mentioned earlier, since the chapters looked at different aspects of poverty, a wide range of academic disciplines was drawn upon to provide insights to assist the development of the various

analyses developed throughout the thesis - that is a multi-disciplinary approach was applied through this thesis. The disciplines drawn upon to varying degrees were: anthropology, demography, development administration, economics, economic history, econometrics, epidemiology, environmental management, game theory, geography, political philosophy, public health and political science.

1.5 A Synopsis of Each Chapter

The core of the thesis is made of five chapters. Chapter 2 is found in Part I, Chapters 3 and 4 make up Part II and Part III is composed of Chapters 5 and 6. In Chapter 7 is set out the conclusions and policy implications derived from the main findings presented in the thesis. Here I will provide a synopsis of each of the core chapters.

The discussion in Chapter 2 in Part I is concerned with answering the following question: Can wide, if not unanimous, agreement be reached by members of a diverse community on a system of justice in distribution used to guide the redistribution of endowments within this community? The answer to this question is important within the context of Philippine society since it should provide some insight into how effectively this community may be able to go about mounting an effective poverty-alleviation program. Clearly if there was wide agreement about this matter then strong political support is likely to be given to any reasonable poverty-alleviation program. The opposite would be the case if this level of agreement was absent. That said, Arrow's impossibility result suggests that the question that has just been posed will receive a negative answer if certain constraints are imposed on the procedures that a community employs in the attempt to make important

community decisions. These conditions are criticised for not allowing for various types of uncertainty that face members of communities - especially communities in developing countries such as the Philippines. Two types of uncertainty are allowed for. The first type refers to the situation where individuals are faced with considerable economic uncertainty that cannot be adequately insured against in private markets. The other type of uncertainty arises within the context that if wide agreement cannot be reached over what system of justice in distribution should be applied in the community concerned, then a consequence may be that this community is faced with political and social chaos. These two classes of uncertainty are allowed for in the design of various game-theoretic experiments to determine if groups of individuals can come to agree, broadly, on a single system of justice in distribution. (These experiments are based on those devised by Frohlich, Oppenheimer and Eavey (1987a and 1987b) and Frohlich and Oppenheimer (1990 and 1992).) The individuals from the Philippines who participated in these experiments were asked to choose one out of four alternative systems of justice. One principle is interpreted as being a version of Rawls' first principle of justice and the priority rule - a principle that is related to Popper's principle of minimising avoidable suffering. It was this system of justice which was unanimously decided upon.

As indicated earlier, Part II is made up of Chapters 3 and 4 - chapters that are concerned with determining some of the factors that cause poverty in the Philippines. In Chapter 3 use is made of macro data from 1990 - 1991 for each of the seventy-three (73) provinces in the Philippines. The argument begins by citing studies that use econometric regression models to analyse variations in poverty incidence and

household income in Bengal and Bangladesh. The insights derived from these studies are modified and adapted to the Philippine situation. The presence of multicollinearity in the independent variables used in the initial models creates considerable difficulties, however. In the attempt to mitigate this problem to some degree and still gain some insights into which independent variables influence the level of poverty and household incomes in the Philippines, use is made of a two-stage least squares estimation procedure.

In contrast the argument in Chapter 4 makes use of micro data to determine the possible links between and among education, credit, deforestation and well-being poverty at the village level. In this chapter two diverse Filipino village communities were intensively surveyed and then focus-group discussions were held.

As also indicated earlier, Part III is made up of Chapters 5 and 6. The argument in Chapter 5 is directed at considering the demographic and health consequences of poverty. In this chapter use is made of relevant macro data sets at the provincial level from 1990 and 1991. By way of making use of these data sets, econometric analysis is used to assess the demographic and health consequences that flow from the level of poverty in the Philippine community. In particular, the demographic variables that are of interest are infant mortality rates, child mortality rates, fertility rates, morbidity rates (resulting from water-borne diseases) and net migration. To determine the influence of rural poverty on selected demographic and health variables, five econometric regression models are constructed. As in Chapter 3, multicollinearity is a serious problem in carrying out the analysis. Consequently, again two-stage least squares is used to estimate relevant regression equations.

Chapter 6, on the other hand, studies the possible consequences of poverty at the micro level. More specifically, in this chapter a multivariate regression analysis is performed to determine what factors are likely to influence the normalised height for age of children in early childhood in rural communities in developing countries. The height for age in early childhood in developing countries has been used widely as a measure of the health status of children in these countries. What is not so widely recognised is that this variable provides, for a range of reasons, an important sensitive indicator of the short- and longer-term levels of well-being of individuals in developing countries.

Part I

Poverty Alleviation as Part of the System of Justice in the Philippines

Chapter 2

Diverse Groups of Filipinos Attempting to Decide on a System of Economic Justice

2.1 Introduction

2.1.1 Voices from the Philippines

Fundamental to the success of any concerted attempt to achieve the social objective of alleviating poverty in the Philippines is that there is widespread support within the Filipino community for the setting of this social objective. If there is no such support it seems reasonable to assert that any attempted poverty alleviation program in the Philippines will meet with little success. These observations provide the initial motivation for the argument developed in this chapter. That said, it is not straightforward to generate satisfactory empirical information to determine if there is widespread support in the Filipino community for the social objective of the alleviation of poverty in the Philippines.

To explain, suppose the simple approach is adopted and individual Filipinos are asked, directly, their views on the matter of the alleviation of poverty in the Philippines. The weakness with this approach, however, is that the respondents are not faced with the consequences that may flow from their replies. For instance, if a concerted poverty alleviation program was implemented, the respondents may have increased levels of taxation imposed upon them

as part of the attempt to generate the revenue required to finance the implementation of this program. If the respondents were aware of this consequence, they may provide a different answer to the question posed - compared to the situation where they were not faced with this consequence.

It follows that a quite different approach has to be adopted in the attempt to generate reliable relevant information. This I do by carrying out appropriate game-theoretic experiments in which diverse groups of Filipinos are faced with a range of alternative systems of justice. These groups are then expected to agree, unanimously, on a single system of justice. In making their choices, the groups of respondents are always faced with the consequences of their choices. In addition, the respondents are faced with economic uncertainty of the type prevalent in the Philippines. Given this realistic context, and if such groups can agree unanimously on a system of justice that incorporates the principle of the elimination of poverty in the community, then it seems reasonable to assert that reliable and useful information has been generated that policy-makers in the Philippines can make use of.

To provide a little more detail concerning these game-theoretic experiments, sixty-two (62) groups, each made up of four or five Filipino students or of government employees were asked to deliberate carefully over what system of justice in distribution they would prefer to see applied to guide the distribution of a given endowment between the members of each group. Each group was then asked to decide unanimously upon some system of justice in distribution. The context within which these decisions were to be made is that the members of each group were faced with various types of uncertainty.

The flavour of these discussions that led up to the decisions that were made in these experiments is indicated by the following selection of comments taken from the transcripts:

> Voice 1: When you maximise the average income with a floor constraint, [that is, all members of the group are to receive a basic amount of income] you are considering the income of the poorest of the poor. That is, I think, the essence of justice. The poor, regardless of whatever income the highest or the middle class receive, at least the lowest level could be helped. At least they feel secure. ... What makes a floor constraint necessary is to make people feel secure.
>
> Voice 2: If you don't have [a] feeling of [economic] security what happens? You panic! [When you don't have money you] will resort to borrowing and everything. For me, it is better to be sure that you can get some money somewhere when you need it.
>
> Voice 3: [A minimum income needs to be provided to all in the community to prevent] the danger of poverty... .
>
> Voice 4: ...[and] political instability. If society is not stable, then ... .
>
> Voice 5: ... the people in the low income level might resort to other things that may not be good for society.
>
> Voice 6: Such as?
>
> Voice 7: Crime.
>
> Voice 8: The problem with [providing a floor income to all in the community] is that [the least well-off] will be discouraged from working...
>
> Voice 9: In maximising the average [income subject to a floor constraint] there would be an incentive for people to attain a higher level of income. The poor will work harder at the same time [as] they feel safe that their incomes will not fall below the floor level.

Part of the reason for citing these comments (which are discussed further in some detail in section 2.5) is that they are reminiscent of parts of relevant arguments put forward to justify, or in criticism of certain

systems of justice in distribution - arguments to be found in various writings in modern political philosophy. This observation and the earlier brief comments (on why game-theoretic experiments are performed in order to generate acceptable information) implies that the game-theoretic experiments of interest here have implications which go beyond just identifying relevant community views in the Philippines. In particular, it has implications for determining what factors may influence any community (not just any Filipino community) in attempting to come to agree on a system of justice. This is a matter of some intellectual and social importance and, therefore, needs to be discussed carefully.

This general observation becomes that more important in the present study since the diverse groups of Filipinos who participated in the game-theoretic experiments described later agreed *unanimously* that the elimination of poverty and destitution in the Philippines should be a priority. This is a remarkable experimental result. This is so since some important theoretical social choice literature (concerned with determining how a community may come to agree on matters of social importance) suggests that reaching such a level of agreement is highly unlikely if certain conditions are applied to the community's decision processes. But not only does the experimental evidence reported here provide contrary results, the designs of the game-theoretic experiments also indicate what general conditions probably need to apply in order to ensure that a community is capable of coming to agree, unanimously, on a system of justice that sets as a priority the elimination of poverty and destitution. It does not seem unreasonable to suggest that this result is of considerable general intellectual interest which bears on a wide literature which is concerned with how communities attempt to come to agreements on matters of justice in distribution.

For these reasons, some care is taken in this chapter in setting out and explaining the broad context within which the game-theoretic experimental results reported later should be interpreted. This explanation of the context within which the relevant game-theoretic experiments take place is provided in the rest of this introduction and in various sections in the rest of this chapter.

2.1.2 Introductory comments on the Arrow Impossibility Theorem

The groups of Filipinos were drawn, explicitly, from comparatively diverse groups from within the Philippine society in the attempt to ensure that these groups, when taken as a whole, held diverse and opposing views concerning a range of issues of social importance. As indicated in section 2.4, these groups did hold diverse opinions on some relevant important social issues - in short, these groups of participants were pluralistic. That being the case, and given the important social issue the groups of Filipino participants were asked to decide upon unanimously, the issue that immediately springs to mind is the following:

Question 1: Can groups of individuals who hold differing views on a range of social issues, come to agree unanimously (or nearly so), on a single system (out of at least three systems) of prudential justice in distribution - a system that will be used to guide the distribution of the total community endowment between members of this community?

In commenting on this question, first it is noted that the term 'prudential justice' alludes to the presumption that the community is asked to agree on a system of justice that will make the lives of individuals in the community better in relevant respects. And while this agreement will bring these improvements, individual lives almost certainly do not reach some sort of perfection - even after allowing for all relevant considerations. In addition, within the context of considering prudential justice, metaphysical moral issues are not the only issues that are likely to be considered when deciding upon some system of justice.[14]

As for the answer that is likely to be given to question 1, that will depend upon the procedures, or rules the community applies to govern the conversion of individual orderings of alternative relevant systems of justice into an aggregated social ordering of community preferences. For instance, if the procedures employed in the community concerned just satisfy the conditions required to derive Arrow's (1951 and 1963) impossibility theorem, then that theorem suggests that question 1 will receive a negative answer. Moreover, this negative answer is meant to apply to all societies for any period in history.

This insight, suggested by Arrow's impossibility result, has served the purpose of inducing many to think about what reasonable alternative conditions, to those proposed by Arrow, could be used to produce possibility results. Certainly a casual perusal of the relevant history for some (but not all) societies suggests to us that acceptable and realistic possibility results are likely to exist. Specifically, certain societies made

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[14] See Griffin (1996: 19-31) for a discussion of prudential systems of justice and how members of a community may go about making their lives better.

up of diverse groups have moved towards arriving at a broad pluralistic consensus over what constitutes an acceptable system of justice in distribution that is used to reduce conflicts between individuals and social groups, over issues of social importance, to acceptable levels.

Reaching this broad agreement is not surprising, however, if the community concerned wishes to become reasonably liberal, stable and well organised. This is so since if this broad consensus is not reached, and the distribution of a community's total endowment remains comparatively unevenly distributed between members of the community, then this community is likely to be plagued by bouts of political, social and economic instability.[15] Eventually, however, generations of individuals come to learn from the relevant experiences and mistakes of their forebears and of their own generation and, thereby, recognise the need to compromise over the system of justice that each individual may wish to see implemented. In so doing each individual realises that each will benefit from the reasonable level of political, social and economic stability that eventually results from reaching a consensus over the system of justice in distribution that comes to be applied in this community. Finally, but not least, history suggests that an indefinite and unpredictable amount of time is required to reach the required level of agreement.

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15 There is some indirect empirical evidence, based on recent historical experience, that provides some support for the argument just presented in the main text. Specifically, in an econometric study that draws on cross-country data sets covering the period 1960 through to the mid-1980s, Perotti (1996) has shown that, after allowing for other relevant factors, there is a statistically significant positive relationship between a measure of personal income inequality within a country and a measure of political instability in this community. Thus, on average, an increase in the level of personal income inequality induces a greater level of political instability (as defined).

For the reasons indicated at the beginning of this introduction, this line of argument needs to be tested to determine if it applies, or will come to apply in the Philippines. This is done by ways other than the casual perusal of relevant history. Specifically, I carry out game-theoretic experiments that are designed to represent relevant important types of uncertainty that face a community attempting to decide on a single system of justice. The design of these experiments is discussed in the next sub-section and in section 2.4. The experimental results obtained and presented in section 2.5 indicate that numerous and diverse groups of individuals are able to reach a unanimous agreement over the *same* single system of justice that is used, subsequently, to guide the distribution of an endowment between members of each group. In other words, the participants in the experiments bear the consequences of their decisions. What is more, some evidence is provided in section 2.5 that indicates that individuals, once the relevant system of justice is unanimously agreed upon, did not attempt to take advantage, at the expense of others, of the application of the distributional rules embodied in the system of justice unanimously decided upon. Rather, individuals appeared to behave cooperatively by contributing to the best of their ability to the functioning of the community. Why this is so is a matter which is left to be considered at the end of section 2.5.

The various observations made over the previous few paragraphs suggest the following supplement to question 1:

Question 2: What non-trivial alternative conditions to the Arrovian conditions imposed on the decision procedure used to decide on a prudential system of justice in distribution, that reflect important aspects

of the uncertain circumstances that individuals face in the world as it is, would ensure that Question 1 is provided with a positive answer?

Finding an acceptable answer to this question forms a central part of the discussion presented in this chapter.[16] To begin such an answer first the Arrovian conditions are discussed in section 2.2 and certain alternative conditions are suggested. These alternative (albeit loosely-defined) conditions are then put to the test by performing appropriately designed game-theoretic experiments that appeal to the moral intuition of the participants. The clear-cut results that emerge by performing these experiments indicate that indeed some of the original Arrovian conditions need to be replaced with conditions that reflect more closely the world that exists at least in Philippine society. After taking into account the results derived from these experiments, the precise form of the recommended alternative conditions is set out in section 2.6.

Finally, it is emphasised here that had the experimental results indicated that groups of individuals did *not* reach consensus, or near unanimous agreement on a system of justice in distribution, then clearly this would require that no modification of the Arrovian conditions was required.[17] Since this was not the case, these experimental results do suggest that some of the Arrovian conditions do need to be replaced with acceptable alternative conditions.

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16 Other attempts have been made to answer questions similar to that set out in question 2 in the main text. See, for example, Sen (1977) and the references cited there, Hylland (1991) and Roemer (1996: 37 - 48).

17 See Yaari and Bar-Hillel (1984) on the methodology of appealing to the moral intuition of pluralistic groups of individuals to test the acceptability of various systems of justice in distribution.

2.1.3 Introductory comments on the game-theoretic experiments and the Rawlsian system of justice

The design of the game-theoretic experiments is based upon the various experiments described in Frohlich, Oppenheimer and Eavey (1987a and 1987b) and Frohlich and Oppenheimer (1990, 1992 and 1996). These experiments were designed specifically to test if a sizeable proportion of the members of a community, when faced with certain types of uncertainty, would decide to adopt Rawls' (1971 and 1993) second principle of justice in distribution, or some other principle. It turns out, however, that these experiments also provide an opportunity (as indicated in the previous sub-section) to determine what reasonable conditions, if any, imposed on a community decision procedure, may induce members of a community to come to agree, unanimously or nearly so, on what single system of justice in distribution should be applied in this community.

As for the interpretation of the design of these experiments, one possible interpretation is that made by Frohlich, Oppenheimer and Eavey. Their interpretation is that they all incorporate some representation of the Rawlsian 'veil of ignorance' behind which all members of the community are completely ignorant as to their future life prospects.[18] From behind this veil of ignorance in the initial situation individuals now are expected to come to a unanimous agreement over what system of justice in distribution is to be applied in this community. If

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[18] In more detail, the 'veil of ignorance' refers to a situation where individuals, when deciding on a system of justice, are not supposed to know their future talents, skill, tastes, or status in the society (Rawls 1971 and 1993). Rawls stressed that the importance of applying the concept of a 'veil of ignorance' lies in its implications; namely, that individuals now are stripped of their family antecedents and, as a consequence, have no bargaining advantage in the deliberations over deciding on a system of justice (Rawls 1993: 22-8).

no such agreement can be reached, then the uncertainty associated with the veil of ignorance persists. That said, and as recognised by Frohlich and Oppenheimer (1996) for instance, in reality it is not possible to replicate Rawls' veil of ignorance in game-theoretic experiments.

A less demanding interpretation and the one which is favoured in this chapter, is that the design of these game-theoretic experiments represents important aspects of the circumstances that currently are to be found in economically developing communities where some eighty (80) per cent of the world's population live.[19] Specifically, a relatively large proportion of the members of these communities is faced with considerable economic uncertainty as a result, in part, of these individuals having little or no access to complete formal, or informal risk markets or credit markets. This is a theme which is expanded upon in Chapter 4, but for the present it is noted that the use of these markets for mitigating risk would allow the mitigation, if not the elimination, of various types of uncertainties.[20] Faced with these economic uncertainties, as before, individuals now are expected to reach wide agreement over what system of justice in distribution should come to be applied in this community. Should this level of agreement not be reached, then the community now may be faced with the added uncertainty of possible socio-political instability.

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19 The countries classed as developing are those that attained a per capita income in 1995, measured at international prices, of US$11,450 or less (World Bank 1997: 214).

20 More detailed discussions of this matter are surveyed in Besley (1995), Martina (1998b) and Ray (1998: Chapters 14 and 15).

Given this last interpretation of the design of the game-theoretic experiments to be employed here, it would seem entirely appropriate that these experiments be carried out in the community of an economically developing, instead of a developed, country. This so since in such a community the participants, presumably, would be more aware than those from an economically developed country of the difficulties associated with contending with the general class of economic uncertainties alluded to in the previous paragraph. This is precisely what was done by way of carrying out these experiments in the Philippines in 1997, a country with a per capita income, in 1995 and in international prices, of US$2,850 (World Bank 1997: 214).

The experimental design contrasts with that employed in the Frohlich, Oppenheimer and Eavey, the Frohlich and Oppenheimer papers (and book) and in papers by others who have employed the Frohlich-Oppenheimer-Eavey experiment. In these experiments the participants were students drawn from communities - North American,[21] Polish[22] and Australian[23] - in which, it seems reasonable to assert, is not to be found the types and level of economic uncertainty prevalent in the Philippines (in 1997). I conjecture, therefore that these participants are likely to be less sensitive than the Filipino participants to the need to reach *wide agreement* on the adoption of a system of justice that would allow members of a community to cope reasonably successfully with the types of economic uncertainty that are pervasive in developing

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21 The universities were the University of Maryland, University of Manitoba, and the Florida State University.

22 See Lissowski, Tyszka and Okrasa (1991). This study is flawed, however, since only five minutes were allowed for relevant decisions to be made. This matter is touched upon in section 4.

23 See Jackson and Hill (1995).

countries.[24] This conjecture tends to be supported by the experimental results reported in section 2.5, and those reported in, for example, Frohlich and Oppenheimer (1992) and elsewhere. Specifically, and as indicated earlier, all sixty-two (62) groups of participants in the game-theoretic experiments carried out in the Philippines agreed unanimously on a particular system of justice in distribution - a system of justice that would allow individuals to cope with the economic uncertainty they faced. In contrast, in the other studies cited earlier a much lower level of agreement was reached on the same system of justice. (The level of agreement reached was about eighty (80) per cent of all groups in Frohlich and Oppenheimer (1992) and around seventy (70) percent in the Polish and Australian studies.)

An apparent implication that can be derived from these limited comparative experimental results is that the culture and the relevant long-term circumstances to be found in the community of which an individual is a member influences this person's impartial judgment of what system of justice in distribution s/he finds acceptable. Thus an individual is not necessarily an autonomous self whose judgments of issues of social importance are uninfluenced by the traditions of the community of which this person is a member.[25] This line of argument, which is never taken into account by Rawls (1971 and 1993) in the process of devising his system of justice, is returned to briefly in section 2.6.

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24 In the case of the participants from Poland, while the average Polish is not considered wealthy compared to an average person living in a developed country, still the Polish participants are faced with less economic uncertainty than the Filipino participants since their basic needs are provided by the Polish Government.

25 The empirical results cited in the main text also tend to support Sandel (1982: 179) and (MacIntyre (1988: 353) who argue that the community of which an individual is a member shapes his or her judgments on matters of social importance.

As for the system of justice decided upon, it is that all in the community are provided with a floor level of income, after which this community is left free to maximise the average level of income for the community. Expressed differently, the community sets out to maximise the average level of community income subject to the constraint of providing a floor level of individual income for all in the community. Clearly such a system of justice, if implemented, removes one of the major uncertainties facing members of the community; namely, the risk of falling into destitution.

It is also pointed out in sub-section 2.3.1 that this system of justice in distribution is a simplified version of Rawls' first principle of justice and the priority rule. What is more, as argued in sub-section 2.3.2, this version of the Rawlsian system of justice is similar to the principle of minimising the level of avoidable suffering in a community - a principle that was recommended much earlier by Karl Popper (1945). Despite this similarity, it is also indicated in that sub-section that the arguments employed by Popper and Rawls, to justify their respective systems of justice, are quite different.

Finally, it is readily acceded that the simplified Rawlsian system of justice does not provide a *detailed* set of criteria for assessing and comparing various relevant social states. Nevertheless, this system does serve the useful social purpose of indicating what system of justice is likely to receive wide acceptance within certain types of communities. If this system of justice is agreed to, its application will assist this community to attain the social objective of a more stable, well-ordered and liberal society. What is more, the simplified Rawlsian system of

justice does not allow certain types of changes in social states to be compared and ranked in ways that make comparatively limited demands on information. This matter is returned to at the end of section 2.6, while concluding comments are made in section 2.7.

The next two sections will provide some information on the literature being referred to in this chapter; namely, that relating to Arrow's impossibility theorem and Rawls' principles of distributive justice.

2.2 Possible alternatives to the Arrovian conditions

Kenneth Arrow (1951 and 1963) set out to determine if a system (the social welfare function) existed that, while it satisfied what seems to be a list of reasonable conditions, could be used to convert information on individual orderings of social alternatives into a single social ordering. Such a list of conditions is the following:

> **P** (Weak Pareto Principle): For any alternatives x and y, if all individuals prefer x to y, then the society prefers x to y (xPy).
>
> **D** (Non-Dictatorship): There is no individual such that, for any set of individual orderings, for any alternatives x and y, if this individual prefers x to y then society prefers x to y regardless of the preferences of all others in the community.
>
> **U** (Unrestricted Domain): For any set of alternatives and any set of individuals, the domain of the information considered in the social welfare function includes all orderings of alternatives by all individuals.
>
> **I** (Independence of Irrelevant Alternatives): How a community orders any alternatives x and y depends only on how individuals order x and y and no other information matters.
>
> **CR** (Collective Rationality): The social welfare function should result in orderings of alternatives that are complete (that is, x is at least as good as y (xPy), or y is at least as good as x (yPx), or both) and transitive (that is, if xPy, and yPz, then xPz).

It turns out, however, that no social welfare function satisfies these five conditions when taken together and if there are at least three

alternatives to be rank ordered (Mueller 1979: Chapter 10). The conditions that do most to precipitate this impossibility result are conditions **U**, **I** and **CR.**

To begin with condition **U** implies that a great deal of information may need to be taken into account when attempting to rank social states. As for attempting to decide on this matter, this task is not assisted by imposing condition **I** since it requires that only a comparatively limited range of information can be used to organise and interpret all the alternatives generated by imposing condition **U**. In particular, the imposition of condition **I** implies that, during the attempt to rank the alternatives x and y, it is not permitted to take into account information on the intensity of individual preferences, or information concerning the context within which such an ordering is to be attempted, or any other information about other alternatives that individuals may wish to make use of. Finally, **CR** imposes a requirement that the ordering of the alternatives (of which there must be at least three) needs to satisfy certain requirements that may be seen to be excessive.

As others have done it seems reasonable to argue, however, that a pluralistic community, when attempting to rank alternative social states, reasonably could take into account a different range of information than that required by the imposition of conditions **U**, **I** and **CR**.[26] For instance, a community could take less information in account than that required by condition **U** in arriving at acceptable social orderings.[27] In

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26 See for example, Sen (1970), Hurley (1989: 234-5, 237-8), Roemer (1994: Chapter 9), Hausman and McPherson (1996: Chapter 12), Roemer (1996: 37-8), Qizilbash (1997: 2012-3) and Barry (1998: 194).

27 This point was recognised by Hurley (1989: 235) who observed: 'We expect a scientific theory to tell us what to believe given the data we have about the way the world is; but we do not also expect it to tell us what we ought to have believed if the world had

the present study individual choices between relevant alternatives is limited to representing the reasonable presumption that most individuals living in developing countries (at least) face income streams that are completely variable, and these individuals are under-insured (and often hardly, implicitly or explicitly, insured) against this income variability. It is assumed in section 2.4 that this uncertain situation applies in the initial situation - and this is so even if the political system is stable and well-ordered.

As for the imposition of condition **I**, this prevents the use of relevant information that individuals may wish to take into account when attempting to decide on a social ordering of relevant alternatives x and y. In this regard, what is emphasised here is that individuals may wish to make use of information concerning the context within which a community attempts to reach agreement over a social ordering. To explain, suppose (drawing on Rawls (1993)) that a community is attempting to make an acceptable social ordering of relevant alternatives within the following context : If wide agreement is reached concerning a particular ordering of relevant alternatives, then desirable social consequences will flow from this decision (such as social and political stability). Should no such agreement be reached, then highly undesirable social consequences (such as political and social chaos) will result from this disagreement. Within this general context it seems reasonable to suggest that individuals are likely to make (eventually at least) compromises, if required, over the orderings they make in the attempt to reach wide agreement over the ranking of relevant

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been different in certain significant respects.' Similar sentiments were expressed by Barry (1998: 194 fn 25) who noted that condition **U** requires that: '[W]e must be able to produce a single ranking of all possible states of the world - a task that no person or institution ever faces or has any reason for facing.'

alternatives. In particular, an individual may be willing to agree to the imposition of a reasonably fair system of justice even though this system is not this person's first choice. (If the proposed system of justice is not seen to be fair by some individuals, they may not agree to this system of justice even though social chaos may result from this failure to compromise. This possibility is returned to in sub-sections 2.5.3 and 2.5.4.)

The contrasting context is that where no severe consequences flow from members of a community not being able to reach wide agreement on some ordering of the same set of relevant alternatives. Within the alternative context it seems reasonable to assert that some individuals, at least, will not compromise over their individual orderings of relevant alternatives. Consequently, no broad agreement can be reached over some single relevant ordering.

It follows that the presence, or absence, of severe social consequences flowing from members of a community not being able to reach a widely-agreed ordering of relevant alternatives may well be information individuals take into account when attempting to reach wide agreement on a system of justice. Nevertheless, the imposition of condition I implies the discarding of all relevant information concerning the context within which these individual orderings are to be made. It seems reasonable to argue, however, that this condition should be replaced with one that does take this information into account.[28] The

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28 It has also been argued by Roemer (1996: 215-7) that the use of bargaining theory, to decide matters of distributive justice, is not convincing when no allowance is made for the context within which the bargaining takes place.

point is reflected in the design of the game-theoretic experiments discussed in section 2.4.

To summarise the argument in the last few paragraphs, there are two types of uncertainty that need to be allowed for when considering the mechanism a community might employ to convert individual orderings of alternative systems of justice in distribution into a social ordering of these alternatives. The one type of uncertainty reflects the under-insured variable income streams that are assumed to face each individual in the community concerned. All individuals face this economic uncertainty *before* any community decisions are made concerning the ordering of alternative systems of justice in distribution. The second type of uncertainty relates to that which may face the community, taken as a whole, *after* a community decision has been made (or not made) concerning the ordering of systems of justice. Specifically, this uncertainty arises from the assumption that if the community cannot reach wide agreement on what single system of justice in distribution should be applied, then adverse social consequences may well flow from this indecision. This latter class of uncertainty sets the general context within which relevant social decisions are to be made.

Turning to the condition **CR**, it imposes a restriction which, if satisfied, produces information that is in excess of what is required if all the community needs to know is what system of justice in distribution is preferred to all the other alternative systems that are to be considered. Suppose, for instance, that there are at least four (4) alternative systems, and the community has agreed, unanimously, on which system of justice is socially preferred to the other three alternatives. This observation also

is taken into account in the interpretation of the results derived from the running of the game-theoretic experiments described later.

If these proposed alterations to the relevant Arrovian conditions are applied, then it is conjectured that members of a community will be able to reach broad, if not unanimous, agreement on what system of justice in distribution should be applied in this community. This conjecture needs to be tested experimentally. This matter will be addressed in sections 2.4 and 2.5. Before doing so, however, it is useful to discuss briefly the more recent writings of John Rawls and much earlier relevant writings of Karl Popper since they shed additional light on the matters raised in this section.

2.3 Brief comments on Rawls' system of justice

2.3.1 Rawls' and some other systems of justice

The core assumption that led John Rawls to derive the system of distributive justice set out in *Political Liberalism* (1993, especially Lectures I, V and VIII)[29] is that members of any community are faced with considerable uncertainty. This core assumption was also applied by Harsanyi (1953 and 1955). These two authors arrived at quite different conclusions, however, as to what system of justice a community would wish to adopt in these circumstances.

Harsanyi conjectures that when faced with this uncertainty 'a group of rational self-interested individuals' would select a principle

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29 As indicated in the main text, this system of justice set out in *Political Liberalism* (1993) has a different emphasis to that set out in Rawls' *A Theory of Justice* (1971).

which would maximise the level of total utility for the community. Such a principle, according to Harsanyi, would result in the social welfare function taking the form of the sum (or mean) of all individual utility levels in the community. The cruder version of this principle adopted here is that the social welfare function taking the form of the sum of all individual income levels in the community.

In contrast, Rawls in *Political Liberalism* (1993) deduced that when members of a community are faced with considerable uncertainty, they would adopt, in their own self-interest, a system of justice that allowed this community to be stable and well-ordered.[30] This system of justice, therefore, needed to be perceived by all members of the community as being just and fair to the extent that this system induces these individuals to accept, of their own volition, the workings of this community's basic institutions (Rawls 1993: 35). The only system of justice, Rawls argued, that would allow this end to be achieved and thereby would ensure a stable and well-ordered society is that which contains as first principle the following: 'each person has an equal claim to a fully adequate scheme of equal basic rights and liberties' with this scheme being the same for all. Simultaneously, the priority rule also is meant to apply which requires that the first principle is satisfied as a priority, before attempting to apply any other principles of justice, whatever they may be (Rawls 1993: 5-6).

Rawls (1993: 6-7) also explained that to ensure that the first principle is indeed satisfied all citizens in the community should be

30 The idea of the need for a community to adopt a system of justice that will allow this community to be well-ordered and stable is also to be found in Barry (1995: 72). Specifically, he states: 'I define [the rules of justice] as the kind of rules that every society needs if it is to avoid conflict - on any scale from mutual frustration to civil war.'

provided with the level of all-purpose income just adequate to ensure that all citizens are now placed in a position where they are able to learn about, and take effective advantage of, the basic rights and liberties the community has guaranteed them. In other words, all citizens are to be provided with a floor, or basic level of all-purpose income that is required to finance the meeting of an individual's basic needs. These needs have to be met if an individual is to be able to take advantage of Rawls' first principle.[31] Once this floor income has been provided to all members of the community, it remains for this community to decide upon any additional principles of justice in distribution it may wish to apply.[32] This may be referred to as the simplified Rawlsian principle of justice in distribution and the priority rule.

This system of justice has some links to a system of justice recommended many years earlier by Popper (1945: Chapter 9) as an alternative to the utilitarian principle of 'maximising the greatest amount of happiness for the greatest number'. However, the argument Popper employed to arrive at his recommendation is quite different from, and quite meagre compared to that developed by Rawls in *Political Liberalism* to derive his system of justice. This matter is discussed briefly in the next sub-section.

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31 In a community where private markets fail (as they most likely will) to supply public goods, an individual will also need to be provided with a basic supply of some appropriate public goods. The supply of these goods (such as basic education and preventive public health) is required, as well as a basic floor income, to allow this individual to take full advantage of the basic rights and liberties available in the community. However, to keep the argument in the main text simple, this complication is not allowed for here.

32 Similar systems of justice have been proposed by others - such as Barry (1973: 77), Frankfurt (1987), Pogge (1989), and Peffer (1990: particularly 384-5 and 404). It is also pointed out that Diokno (1987: 30), a noted Filipino nationalist, proposed that the basic material needs of all be met first and then the improvement of the standard of living of all, but with special emphasis on the lower-income groups. The latter is similar to Rawls' second principle of distributive justice.

In *A Theory of Justice*, Rawls also had extended his system of justice to include the well-known second principle that required, after the first principle had been satisfied, maximising access for the worst-off individuals in the community to a stock of basic, or primary goods. Presumably, to ensure this access the worst off in the community are provided with the all-purpose income to allow them to acquire access to these primary goods. In *Political Liberalism*, however, Rawls gives little emphasis to this second principle of justice.[33] Nevertheless, this second principle of justice which is sometimes called the 'difference principle' may still be a principle that a community, faced with considerable economic uncertainty, would wish to adopt instead of the first principle. The simplified version of this principle referred to here requires that the all-purpose level of income received by the least well-off in the community is maximised.

These brief comments in the previous few paragraphs indicate that there are at least three alternative systems of justice that a community may wish to choose from under conditions of considerable uncertainty: (a) maximise the level of total income for the community; (b) the simplified Rawlsian first principle of justice and the priority rule; and (c) the Rawlsian second principle of justice. This list of alternative systems of justice can be increased to include an extension of Rawls' first principle of justice; namely: (d) all members of the community are to receive at least the floor level of all-purpose income and none are to receive a level of income above some agreed upper bound level of individual income.

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33 Others also have noted that Rawls, in his more recent writings, has little to say about his second principle. See Laden (1991: particularly 215-7) and Pogge (1989: 161).

Individuals within a community now are assumed to be faced with the task of choosing a single system of justice from these four alternative systems of justice. If the community can agree on such a system, then this system will be used to guide the distribution of the community's endowment among members of this group. To conform with reality, however, this choice has to be made under conditions of relevant types of uncertainty discussed in the previous section. The pertinent issue now becomes a variation of question 1 as set out in sub-section 2.1.2: Within this particular context can pluralistic groups of individuals come to agree unanimously (or nearly so) to the adoption of one of these alternative prudential systems of justice in preference to any other?

It is this question that Frohlich, Oppenheimer and Eavey (1987a and 1987b) and Frohlich and Oppenheimer (1990, 1992 and 1996) implicitly set out to answer by way of attempting to generate relevant empirical information that allowed an answer to the question posed. This the authors did by carrying out various game-theoretic experiments in which groups of participants were faced with relevant uncertain circumstances. The design of these experiments will be discussed in section 2.4.

It is noted that Frohlich et al. (1987a, 1987b, 1990 and 1992) did not refer, explicitly, to Rawls' first principle of justice and the priority rule. Rather they set the condition of the community being free to maximise the level of total community income subject to the constraint that all in the community are to be provided with a floor level of income. In other words, as a priority, all in the community are to be provided with a floor level of income. Once this condition, or constraint has been satisfied the community is left free to maximise the level of community income. This

system of justice considered by Frohlich et al. (1987a, 1987b, 1990 and 1992) can be interpreted as a being a more particular version of Rawls' first principle of justice and the priority rule. And it was this latter system of justice in distribution that, as noted earlier, Rawls subsequently came to emphasise in his *Political Liberalism* published in 1993.

2.3.2 Rawls' and Popper's principles of justice compared

As noted in the previous sub-section, there are some similarities between Rawls' first principle of justice and the priority rule, and the principle of justice recommended by Popper. Popper recommended that a community sets the social objective of minimising the level of avoidable suffering (Popper 1966: 158, 235 fn 6 and 285-6 fn 2).[34] While Popper does not explain what precisely he means by this principle, it seems reasonable to argue that this principle requires that, as a priority, all in the community are provided with access to a basic set of rights and liberties. What is more, in order to attain this social objective, as a priority all in the community are provided with, at least, a basic amount of all-purpose income that allows each individual to take advantage of the rights and liberties available to members of this community.[35]

This interpretation of the principle of minimising avoidable suffering is given some support by comments made later by Popper (1958) where he endorses the principle that a (Western) community

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34 Use is being made here of the fifth edition of Popper (1945).

35 As before, difficulties posed by private markets failing to provide public goods, are ignored in the main text.

should recognise that 'the struggle against poverty must not be left to chance' (Popper 1958: 216). By a society adopting this principle, and it being willing to make a concerted effort to fight poverty, 'testifies to the sincerity of its conviction' and, therefore, '[this society] has the right to put its ideas into practice' (Popper 1958: 217). Again, to achieve this objective, presumably, as a first priority all in the community should be given access to a basic amount of all-purpose income; that is access to enough income (or means to income) to ensure the elimination of (income-only) poverty.

There also are other similarities between the respective principles of justice in distribution recommended by Popper (1945) and later by Rawls (1993). Specifically, both saw the need to devise a system of justice that could be presented as a credible alternative to the utilitarian principle of maximising the level of community well-being - a principle of justice that both Rawls (1971) and Popper (1966) found suffering from serious defects. That said, the argument employed by Popper to justify his recommended principle of justice was quite different from that provided by Rawls (1971 and particularly 1993).

To explain, the comparatively limited relevant argument provided by Popper (1966: 158-9 and 1960: 84-5) is based upon pragmatic considerations; namely, the sole criterion for determining which principle of justice should be applied is that which can be most easily and effectively implemented. The principle of minimising avoidable suffering, Popper argued, would be comparatively easy to implement effectively compared to the considerable practical difficulties associated with implementing some more complicated and grandiose principle of justice such as maximising the level of community well-being. Also, if any

mistakes are made in implementing this principle, then these mistakes are comparatively easy to correct.

It follows that Popper was concerned with the relative size of the relevant risks and uncertainties that arise *after* any particular principle of justice has been decided upon. In contrast, however, Rawls was very much (but not only) concerned with relevant risks and uncertainties that are present *before* any principle of justice has been decided upon.

Turning to Rawls, as is well known he assumes that a representative community is faced with a 'veil of ignorance' in the original position in which members of this community are negotiating over what system of justice to adopt.[36],[37] In other words, individuals are confronted with complete uncertainty as to the likelihood of future relevant events such that the probabilities attached to the occurrence of major contingent events cannot be determined. Thus it is quite possible that any individual may receive an income less than the floor level of individual income. If this does occur for the individual concerned, this person will be faced with disaster and destitution. In these circumstances this person is likely to be strongly risk averse. Thus any income this person receives which is below the floor level will be given a comparatively high value by this person. In contrast, in these

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36 The present discussion draws on Rawls (1993: Lectures I and VIII), Laden (1991: 216) and Martina (1998a: 74-5).

37 Rawls (1993: 22-8) stressed that the reason for imposing the assumption of the 'veil of ignorance' is so that all individuals now were stripped of their family antecedents. As a consequence individuals have no bargaining advantage in the deliberations over a system of justice and, hence, no particular individuals or groups are able to impose their particular views and values on others in the bargaining process. It follows that any system of justice that is decided upon in this situation is likely to be seen to be fair by members of the community. Hence this system receives wide support - at least compared to that given to any system of justice that is the consequence of certain groups being able to apply their bargaining strength during negotiations over a system of justice.

circumstances any additional income this person receives which places this person above the floor level is likely to be given a comparatively low value. Finally, and not least, it is assumed that all individuals will not be able to insure in private insurance markets against the uncertainties they face in the original position. (As noted in section 2.1.3, this is the situation that tends to apply in developing countries.) The reason is that the values of the probabilities attached to contingent events cannot be determined and, hence, no private insurer would be willing to provide insurance in these circumstances.

It follows that in this set of circumstances those individuals who are faced with the threat of devastating economic situations are likely (eventually at least) to see advantage for themselves by operating outside the structures created by current social, political and economic institutions. Faced with this threat of potential social and political instability, it seems reasonable, therefore, for prudent risk-averse members of a diverse community to regard it as being in their mutual interest to ensure that this system of justice in distribution is unanimously agreed upon (or nearly so).[38] Once this system of justice is agreed to it is implemented and maintained indefinitely into the future. In contrast, if this agreement is not reached, then there is always the presence of the relatively high risk that social, political and economic instability will be prevalent in this community.

At this point it is noted that the two types of uncertainty referred to in the previous section are present in the Rawlsian thought experiment. Is the presence of these two types of uncertainty enough to induce the

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38 See Rawls (1993: 27) on this point.

overlapping consensus that the community should adopt Rawls' first principle and the priority rule? Rawls (1993) implicitly reasoned that it was. The way in which this question is answered here is to carry out relevant game-theoretic experiments. These experiments will also provide a test to determine whether a community, when faced with relevant types of uncertainty, would adopt unanimously a simplified version of Popper's principle of minimising avoidable suffering.

To conclude this section, more needs to be said about the motives individuals may have for adopting the Rawlsian first principle of justice and the priority rule. Only two types of motives have been considered up to now - the pragmatic motive alluded to by Popper and the motive of prudential self-interest emphasised by Rawls. There is likely, however, to be another motive which was not discussed by Popper or Rawls. Specifically, and bearing in mind that all individuals are faced with considerable uncertainty, each person may develop an empathy, and thereby a compassion for those, but yet unknown, unlucky individuals who will be faced with destitution (if nothing is done to prevent this situation occurring) once the veil of ignorance is lifted. And once the veil of ignorance has been lifted, those individuals who are lucky enough to be comparatively well off may continue to feel sympathy and compassion for those who, through no fault of their own, are faced with destitution, that is, before anything is done to prevent its occurrence. These motives, if continuously held, also contribute (along with any other relevant motives) towards inducing individuals to agreeing to the implementation of Rawls' first principle of justice and the priority rule over an extended period of time.[39]

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39 It could be argued that by individuals adopting the motives of sympathy and compassion for others less well off than themselves this creates, what Cohen (1997: 10)

It probably would be impossible to determine the relative importance of each one of the motives, listed in the previous paragraph, that results in a community agreeing to the implementation of the Rawlsian system of justice of interest here. For instance, an individual may adopt a number of motives simultaneously. What can be said here, however, is that the game-theoretic experimental results suggest that there were a number of motives, and not just one, that contributed towards the respondents in these experiments choosing the system(s) of justice that they did. This matter is discussed in sub-section 2.5.3.

2.4 The design of the game-theoretic experiments

2.4.1 Introduction

As indicated in sub-section 2.1.3, the game-theoretic experiments that were conducted in the Philippines were based upon those devised by Frohlich, Oppenheimer and Eavey (1987a and 1987b) and Frohlich and Oppenheimer (1990, 1992 and 1996). The basic experimental design consisted of three steps, namely:

- Groups of participants were given a brief introduction to various systems of economic justice relating to the matter of distribution of personal incomes under conditions of uncertainty. Each participant was then asked to make an initial ranking of the four systems of justice listed in sub-section 2.3.1.
- Next the groups of participants were given unlimited time to discuss these systems.[40] After these deliberations each group was asked to

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calls, the 'ethos of justice' in a community. This ethos then contributes towards inducing individuals to choose and implement some egalitarian system of justice. The egalitarian system of justice that Cohen had in mind, however, was the second Rawlsian principle - not the first principle of justice and the priority rule.

reach a unanimous agreement on which of the four alternative systems of justice they wished to have applied to determine the distribution of a given endowment allocated to each group. Each group also was told that the system chosen (or imposed) subsequently would be used to guide the redistribution of unknown amounts of personal income that each member of the group would receive. If a unanimous agreement could not be reached, however, then a system of justice would be imposed upon the group by the moderator conducting the experiment.

- There was a de-briefing in which each participant was asked again to provide a final ranking of the four alternative systems of justice in distribution.

It follows from this brief description of the design of these experiments that the participants were faced with two forms of uncertainty. These forms of uncertainty represent the two types of uncertainty emphasised in the argument developed in section 2.2. The first was that a given amount of income allocated to each group of participants was to be randomly distributed among the members of the group. Thus the participants did not know the level of the personal incomes that they are to receive in the future, and before any attempt was made to redistribute personal incomes between the participants according to some relevant system of justice in distribution. Thus the domain of the alternative systems of justice to be considered was restricted to the situation where individuals were faced with uncertain income streams.

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40 In the study by Lissowski, Tyszka and Okrasa (1991) only five minutes were allowed for these discussions.

The other form of uncertainty arises from the requirement that if the participants of any group do not agree unanimously on a system of justice that is to be applied amongst members of the group, then the group(s) concerned will have an unknown system of justice imposed upon it by the moderator. This potential threat is meant to represent, as conjectured by Rawls, that dire consequences may flow from a community not reaching wide agreement on the social ordering of matters of import to this community. This was pointed out in the earlier discussions of Rawls' conjecture in sub-section 2.3.2. This potential threat is also meant to represent the context that relevant decisions are made. This point was discussed in section 2.2 within the context of the Arrovian condition **I**.

While the first type of uncertainty is only a weak representation of the Rawlsian veil of ignorance, it more closely represents, as indicated in sub-section 2.1.3, the uncertain economic circumstances to be found in developing countries, where insurance and credit markets are incomplete. Thus it seems appropriate that those who participate in these game-theoretic experiments are familiar with these circumstances. To achieve this end the participants in the experiments reported here were citizens of the Philippines. In addition, and remembering that Rawls' system of justice is meant to be adopted by a society whose members may hold diverse opinions on a range of social issues, the participants were drawn from: both genders and various age groups; both rural and urban backgrounds; a range of income groups; and populations of university students and government employees.

To test if the participants did hold a diversity of opinions on a range of social issues, they were asked questions on their general

attitudes towards income redistribution and political parties. Students were asked their motivation for participating in the experiments, while government employees were asked their views on different political parties and attitudes towards risks. The differences in the responses were statistically significant as between participants from MetroManila and those outside of this region. The responses to questions regarding attitudes to income redistribution by the students were found statistically significant at the .001 level and for government employees at the .003 level. Hence, the participants were not too homogeneous in their value systems. That said, for the other questions - on motivation for participation, attitudes towards life and minority groups and economic aspirations and future career plans and aspirations - the responses by location were not found significantly different from each other.

Finally, the group discussions were recorded electronically. Transcripts were made of these recorded discussions.[41] A sample from the transcripts is labelled as Annex 1.

2.4.2 More detail on the structure of the experiments

Three types of game-theoretic experimental designs were conducted in the Philippines to capture various types of relevant circumstances. One type of experiment consisted of the terms 'justice' and 'principles of distributive justice' being mentioned explicitly in the handbook provided to the participants in the game-theoretic

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41 There are 83 pages of transcript. For a fee to cover the cost of reproducing them, these transcripts are available upon request. Words or phrases used by the participants in the vernacular were carefully translated into their English equivalent.

experiments. To determine if the choice of principle would change if there was no reference to the words 'justice' and 'principles for distributive justice', in the second type of experiment these words were replaced with the terms 'income distribution' and 'rules for distributing monetary gains and losses'. [42]

These two types of experiments consisted of three parts. The first part was where the individual participants in each group were asked to rank order the four alternative principles of justice listed earlier. Participants were told that this principle would be applied later in the process of redistributing the initial individual incomes that would be randomly allocated to each participant. The participants had to rank order these alternative principles on three occasions. The first occasion was when the participants were introduced to the four principles. The second occasion was when the participants were asked to determine if they had understood the concepts which were being used in the experiment. The final occasion was when the participants were asked to discuss, for an unlimited period of time, the alternative systems of justice and then were expected to agree unanimously on one of the systems. It was suggested that the participants were to assume that they were policy makers in the Philippine Government, or members of a committee that would decide on rules for distributing incomes among its constituents. A lengthy and open discussion of the principles was permitted. If no such agreement was reached then some system was imposed by the

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42 Other variants to the basic research design were introduced by Frohlich, Oppenheimer, and Eavey (1987a and 1987b). One such variant made the risks seem higher for the participants. This was done by lowering the floor income and raising the ceiling income level compared to the basic experiment. This resulted in an increase in the difference in the pay-offs received by the participants prior to any redistribution of income based on the chosen principle of justice.

moderator. After this, the participants were asked to provide demographic, sociological and psychological data about themselves.

The third type of experimental design was more complex. The main difference is that each participant was expected to perform an unspecified task for which s/he would be paid a fee. The amount of before-tax-cum-transfer income a participant received was totally dependent on how well the participant performed this task. Since the participant did not know if s/he possessed the inherent skills required to perform, effectively, the unspecified task, essentially s/he was faced with complete uncertainty, in the initial situation, as to how much before-tax-cum-transfer income s/he would receive. Faced with this uncertain situation, as before the participants in each group discussed and then were expected to agree unanimously on one of the alternative systems of justice. If no such agreement was reached then a system was imposed by the moderator.

The task the participants subsequently were asked to perform, after the system of justice was decided upon (or imposed if need be), was to correct the spelling mistakes within a given text. The more spelling errors identified by a participant, the larger was the before-tax-cum-transfer income that this individual received. Subsequently, and to ensure that the conditions of the agreed system of justice were satisfied, the incomes of some individuals were taxed at a certain rate and the revenue raised was used to finance income transfers to others.

The next element in the design of this experiment was aimed at eliciting information on how stable individual and group preferences are, with respect to a particular system of justice, once individuals have borne

the consequences of the application of the group's initial choice of a particular principle of justice. It is possible that some may change their preference once they experience the consequence of their previous behaviour. In the attempt to generate relevant information each participant was asked after the initial task had been performed and the redistribution of personal incomes had taken place, if s/he wished to change her/his mind as to which system of justice should be applied. The participants were asked four questions, as follows:

- How do you feel about the principle you chose?;
- How do you rank the principle now?;
- How sure are you in your choice of principle?, and
- How satisfied are you with the principle you chose?

After the participants had indicated their responses to these questions in the end-of-production document, they were then required to correct spelling mistakes in a different passage of prose. The personal incomes received for performing the task were redistributed again according to the agreed system of justice. Finally, the participants were asked to perform this last sequence of steps once more.

With the information gathered on how well each participant performed the task assigned at each stage of these experiments, it was possible to identify the influence that the implicitly agreed tax-cum-transfer system had on labour productivity. In addition, it was possible to observe how stable were individual preferences for a particular principle of distributive justice, when the individuals concerned bore the consequences of the application of the group's choice of a particular principle of justice.

The final component in the design of this extended production experiment was that the form of this experiment was varied in order to determine the influence of democratic participation, in the process of deciding on a system of justice, on the level of labour productivity. While most groups were expected to make a unanimous decision concerning some relevant system of justice, one variation of this experimental design was that a group was allowed to make a decision by using a simple majority rule. Another variation was that the moderator imposed the floor-constraint principle of justice on the groups concerned.

Details on the features of and procedures for each of the three variants described in the previous paragraphs are contained in Handbooks A (with reference to justice), B (without any reference to justice) and C (production experiments with reference to justice). These handbooks are labelled as Annexes 2 to 4, respectively.

2.4.3 Information on the participants in the experiments

Table 1 sets out the number of participants in the experiments according to the conditions and the location of the experiment (that is whether it was held in MetroManila or outside MetroManila). Of the 320 participants, 110 individuals were given handbooks with reference to justice, another 110 persons were given handbooks without reference to justice, and the rest undertook the production experiments. There were 22[43] groups in which the participants went through three rounds of work, pay and redistribution. Of these latter groups, 12 groups were expected

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43 As indicated earlier in the text there should be five participants per group. However, in the case of the student participants, sometimes not all of the five individuals showed up. Thus about a third of the total number of groups (25 out of 67) had between two to four participants per cluster.

to choose some system of justice unanimously. An additional five groups used the majority rule to decide this issue. The other five groups had the floor-income constraint principle of justice imposed upon them.

Table 1. Number of Participants and Groups Based on Different Experimental Conditions and Location

Condition	Students				Government Employees				Total	
	Metro-Manila		Outside MetroManila		MetroManila		Outside MetroManila			
	Indi-vidual	Grps.	Indi-vidual	Grps.	Indi-vidual	Grps.	Indi-vidual	Grps.	Indi-vidual	Grps.
Experiments without production (i) With reference to justice	25	7	25	6	30	6	30	6	110	25
(ii) With no reference to justice	25	5	25	8	30	6	30	6	110	25
Experiments with production and with reference to Justice (i) Unanimity	28	6	25	6	0	0	0	0	53	12
(ii) Majority Rule	14	3	10	2	0	0	0	0	24	5
(iii) Imposed	8	2	15	3	0	0	0	0	23	5
Total	100	23	100	25	60	12	60	12	320	72

While all those who participated in the Frohlich-Oppenheimer-Eavey experiments were all undergraduate students, the experiments that were conducted in the Philippines had participants who were both undergraduate students and government employees. Students were chosen as participants in the experiments since they were expected to be the future administrators of governmental as well as non-governmental programs concerned with the distribution of the nation's resources (that is, land, labour, capital and technology). On the other hand, government employees were selected because they are the current administrators of public sector programs concerned with

agriculture and agrarian reform and providing infrastructure, budgets and social services such as health and community welfare - programs which, at least in part, are concerned with distributional issues.

The experiments in which university students were participants were run in two universities in the Philippines. One university was located within MetroManila and the other outside of MetroManila. A total of 200 undergraduate students participated in the experiments (see Table 1). Of the total, 50 per cent (or one hundred participants) came from the University of the Philippines in Diliman (U.P. Diliman), Quezon City and the other half from the University of the Philippines in Baguio City (U.P. Baguio). Students in U.P. Diliman came from different regions of the country, while most of the U.P. Baguio students originated from Northern Luzon, particularly the Cordillera Administrative Region, the Ilocos Region and the Cagayan Valley Region. The participants were selected by stratified random sampling[44] from a list of undergraduate students who were in the junior (third year) and senior (fourth, fifth, sixth or seventh year) levels. Students from U.P. Diliman who participated in the experiment were specialising in economics, engineering (civil, chemical and industrial), social work and community development, linguistics and mass communication. Participants from U.P. Baguio, on the other hand, were majoring in economics, political science, mathematics, biology and mass communication.

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44 Stratified random sampling is 'a method wherein a universe is divided into sub-universes such that the units within each sub-universe are more alike than are the units in the universe as a whole, and a random sample is taken in each sub-universe.' (Oñate and Bader 1990: 16). It is worth-mentioning that selection of participants in the Philippine experiments was somewhat different from the Frohlich-Oppenheimer-Eavey experiments. In the Philippine case, students and government employees were selected by stratified random sampling from a list provided by the schools and the government offices, while in the Frohlich-Oppenheimer-Eavey study, the undergraduate students were recruited through classroom announcements and were invited to participate in the experiments on a voluntary basis.

Apart from the universities, the experiments also were conducted in government offices in MetroManila and outside MetroManila. There were 120 employees from six[45] government agencies who participated in the experiments. These agencies are the Departments of Agriculture, Agrarian Reform, Public Works and Highways, Health, Social Welfare and Development and Budget and Management. These six departments are among several 'front line' government agencies that deal directly with the public on matters concerning the formulation and implementation of plans, policies, programs and the distribution of funds for their respective sectors. These departments also have several bureaus under their jurisdiction or attached to them. Of the 100 public sector employees who participated in the experiments, half were from the National Capital Region and the rest were from the Cordillera Administrative Region. The employees also were selected by stratified random sampling from a list of technical staff provided by the personnel section in each relevant department.

2.5. The results of the game-theoretic experiments

2.5.1 On unanimity and choice of a principle of justice

Table 2 sets out the number of groups choosing a particular system of justice, subject to the conditions imposed on a particular experiment. As indicated in the table, of those sixty-two (62) groups that were free to choose any one of the four alternative systems of justice all these groups agreed unanimously on some principle of justice - although the choice made by each group was subject to the constraint that if a unanimous agreement was not reached by a group then some

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45 Due to time and budget constraints, the number of government agencies was limited to six.

arbitrary system would be imposed upon this group. What is more, 100 per cent of these groups unanimously agreed on the principle of justice: all in the group are to be provided with a floor level of income after which this group would be left free to maximise its average level of income. This is the floor-income constraint principle of justice. This was so in the instance of both the non-production and production experiments. The same principle of justice also was chosen by the five groups for which the majority rule was used to decide on what system of justice should be applied by the group concerned. These results imply, therefore, that these groups all agreed unanimously on a system of justice that is, as argued in section 2.3, a simplified version of Rawls' first principle of justice in distribution and the priority rule. This principle is, in turn, similar to a simplified version of Popper's principle of minimising avoidable suffering. These experimental results alone are remarkable and will be commented upon later.

Table 2. Number of Groups Based on Different Experimental Conditions and their Choice of Principles of Justice or Rules for Income Distribution

Condition	Chosen Principle of Justice or Rule for Income Distribution			
	Maximising Floor Income	Maximising Average Income	Maximising Average Income with a Floor Constraint	Maximising Average Income with a Range Constraint
Experiments without production (i) with reference to justice	0	0	25	0
(ii) no reference to justice	0	0	25	0
Experiments with production and with reference to justice				
(i) Unanimity	0	0	12	0
(ii) Majority Rule	0	0	5	0
(iii) Imposed	0	0	5	0
Total	0	0	72	0

It follows from these basic experimental results that it did not matter what the characteristics were for each of the participants in each group since all groups agreed on the floor-income constraint principle of justice. This observation is confirmed by the information set out in table 3 where the broad characteristics of the groups of participants are indicated. Thus the experimental results do not contradict the view that unanimous agreement on a single system of justice in distribution can be achieved in a community whose members may hold diverse views on a range of social issues.

Table 3. Number of Groups Based on Type of Participant and Location and their Choice of Principles of Justice or Rules for Income Distribution

Type of Participant and Location	Principle of Justice or Rule for Income Distribution			
	Maximising Floor Income	Maximising Average Income	Maximising Average Income with a Floor Constraint	Maximising Average Income with a Range Constraint
Students (i) from Metro-Manila	0	0	23*	0
(ii) from outside of Metro-Manila	0	0	25*	0
Government Employees (i) from Metro-Manila	0	0	12	0
(ii) from outside of Metro-Manila	0	0	12	0
Total	0	0	72	0

* Includes data for game-theoretic experiments where the re-distributive principle was imposed.

In reaching these unanimous agreements all groups were left free to discuss at length the merits and weaknesses of the four alternative

systems of justice in the light of the two types of uncertainty each participant was faced with. The two types of uncertainty were discussed in the previous section and will be discussed further later in this section. Above all, it is emphasised that these discussions were not guided in any way. Rather, each participant was free to make her/his own choice from the menu of alternative systems of justice, although subject to the constraints created by the two types of uncertainty each participant was faced with. As for the group discussions that went into making these constrained choices, they indicate that the participants took this activity seriously in that most groups discussed the relevant issues at stake at some length. Seventy per cent (47 of the 67) of the experimental groups discussed a range of relevant issues. The remaining groups adopted the floor-income constraint principle more or less immediately once it had become obvious to the participants that they all had made the same choice of a system of justice and therefore there was no need for a discussion of the relevant issues at stake. The average length of the discussions for the various groups is indicated by the information set out in table 4. The average length of the group discussions was about 48 minutes.

Table 4. Number of Groups Based on Length of Group Discussion and Location

	Students		Government Employees		Total
Length of Group Discussion	MetroManila	Outside MetroManila	MetroManila	Outside MetroManila	
1. Extensive Discussion (more than 1/2 page of transcript)	10	19	7	11	47
2. Brief Discussion (1/2 page or less of transcript)	11	3	5	1	20
Sub-total	21	22	12	12	67

Most important of all the participants also explained why they adopted the principle of justice agreed upon - a matter returned to in sub-section 2.5.3.

2.5.2 The level of the floor-income constraint

While there was unanimous agreement within and between all groups on what system of justice should be applied, there was some disagreement among participants over where to set the level for the floor-income for the representative household. The floor-income level chosen by government employees was higher than that set by the university students (see Table 5). This difference probably can be explained by the fact that the government employees were more experienced in the matter of costs associated with raising a family. The mean levels of the floor income set by the students from MetroManila and those from outside MetroManila were also found to be significantly different from each other ($p = .003$). This was not so, however, in the case of the government employees since the mean levels set by the two regional groups were not statistically different from one another ($p = 0.41$). That said, the level of the floor income set by the two groups (students and government employees) were both substantially higher than the annual poverty line set by the Philippine Government in 1997[46] and the basic income tax exemption of 60,000 pesos for employees.

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46 The 1997 annual per capita poverty threshold was 11,388 pesos (NSCB Technical Working Group on Income Statistics 1997). An annual poverty threshold figure of 56,940 pesos per household was derived by multiplying the per capita poverty threshold by five, which is the average household size in the Philippines.

Table 5. Level of Annual Household Floor Constraints Set by the Experimental Groups in MetroManila and Outside of MetroManila by Type of Participant

	Students		Government employees	
	MetroManila	Outside Metro-Manila	MetroManila	Outside Metro-Manila
Number of groups	21	22	12	12
Mean (in pesos) (in US dollars)*	299,000 7,475	279,205 6,980	347,750 8,694	344,500 8,612
Median (in pesos) (in US dollars)*	273,000 6,825	273,000 6,825	390,000 9,750	292,500 7,312
Standard deviation (in pesos) (in US dollars)*	131,294 3,282	67,385 1,685	144,456 3,611	137,790 3,445
F-statistic	**3.70**		**1.16**	
p =	**0.003**		**0.41**	

*Conversion rate used: 1 US dollar = 40 Philippine Pesos.

It might be argued that the empirical result indicating that no agreement could be reached within reasonably narrow bounds as to where the floor income constraint should be set, suggests that the floor-income constraint principle of justice is of little practical worth. This argument is returned to at the end of section 2.6 where it is suggested that, even with this lack of agreement, it still may be possible to say something useful about how social states may be compared and ranked.

2.5.3 Reasons for the choice of principle

At this point the discussion returns to consider the sort of issues raised by the remarks, set out in sub-section 2.1.1, made by the participants in the experiments. These remarks also indicate the motives

the participants had for adopting a particular system of justice which was an issue touched upon in sub-section 2.3.2.

As noted within the context of table 4, by far the majority of the experimental groups discussed the issue of distributive justice at some length. Many groups of participants came to reasoned conclusions that took into account realistic situations that are likely to apply in the Philippines. In particular, the participants concerned were well aware of the economic uncertainty that filled the lives of members of the Filipino community. Some of these participants also articulated the important implication that flows from this observation; namely, for the community not to mitigate this economic uncertainty to a reasonable degree would contribute, in an important way, towards precipitating political and social instability. What is more, some participants expressed sympathy for the severe economic situation that faced the less well-off in this community. That said, some participants believed, however, that there were costs attached to policies directed at mitigating economic uncertainty. In particular, some of the participants were acutely aware of the need to take into account the possibility that the application of a redistributive tax-cum-transfer system could induce individuals to behave deceptively in an attempt to take advantage of this system at the expense of others. As will be indicated later, the relevant experimental results indicate that the level of these costs is not great, if not non-existent. For the present, however, more of the sort of comments which were cited in sub-section 2.1.1 will be set out here. These comments are organised by issue raised by the participants.

(i) Providing a minimum level of income will provide a system of insurance that will enable persons to meet their basic consumption

needs, increase their chances of survival and mitigate economic insecurity.

> Voice 1: In maximising the average with a floor constraint there would be a buffer so that no one would fall below poverty. (Transcripts: 5)

> Voice 2: Also here within the Philippines if there is a minimum income per person he will be able to survive. He doesn't need to go to another country. We do not need to be slaves of foreigners for us to earn [enough]. If there is work here, why don't we just work in our country ? (Transcripts: 35)

> Voice 3: At least if you have a floor constraint, then there is a sure income for every month and the person will feel more stable. For Filipinos, security of tenure is very important and security in itself...If you don't have this feeling of security, what happens? Panic? You will panic! Isn't it that when you do not have any money, you have a big problem?... So that is what happens to them. They will resort to borrowing and everything. (Transcripts: 13)

> Voice 4: Basic needs and security. I think it is hard to say basic needs without security. It would mean you cannot sustain your basic needs. Health and education, you need that later. Basic is just food, clothing and shelter. With security at least their options would be maximised. (Transcripts: 19)

These reported comments suggest that the dominant but possibly not the only motive expressed by these participants is that of self-interest, such that implementing the floor constraint system of justice will insure each participant against the risk of facing destitution.

(ii) Providing this basic income will raise the capability of individuals to work more productively and, hence, be capable of raising the level of income they receive.

> Voice 1: If you don't manage the floor, there is a possibility for some people to receive zero incomes. You would be a burden to society. You are not productive. (Transcripts: 68)

> Voice 2: If that is set, there won't be so many poor. No one would fall below the poverty line. I think that is just because those in the higher income levels may earn as much as they want. There is no limit. But at the lower levels, there is at least a minimum income that is just to satisfy their

needs... For survival and of course to be physically and mentally healthy in order to be productive. (Transcripts: 32 and 33)

This last set of comments also indicates that individuals need access to a basic, floor level of all-purpose income to allow an individual to acquire a range of goods and services required for this person to function reasonably effectively - an idea to be found, as noted earlier, in Barry (1973: 77), Frankfurt (1987), Sen (1985 and 1993), Pogge (1989), Peffer (1990: 384-5 and 404) and Rawls (1993: 6-7).

(iii) Social instability comes from gross income inequality.

Voice 1: [A floor income needs to be provided] because you have to consider the stability of income...and the stability of society as well. (Transcripts: 29)

Voice 2: Now, if you have the exact amount for you to survive, you don't need to find ways and means to survive. If you know that you will be below the poverty line, what shall you do? You will do all means for you to survive. Hold-up, kidnap, something like that. (Transcripts: 35)

Voice 3: What is happening now is that basic needs are not met. Hence, crime incidence is high. Maybe when they [basic needs] are met, the crime rate will go down. (Transcripts: 46)

Voice 4: [A minimum income needs to be provided to all in the community to prevent] the danger of poverty. (Transcripts: 20)

Voice 5: [And] political instability. If society is not stable, then... (Transcripts: 20)

These participants clearly would have a good idea, based on personal experience, of what Rawls was talking about in Lectures I and VIII in *Political Liberalism*. Their arguments were based on the need to satisfy prudential considerations (of the sort to be found in *Political Liberalism*) which will allow the lives of the less well-off in the community to become better.

(iv) In contrast, some participants chose the floor constraint principle, in part at least, since they were concerned about the severely deprived circumstances that the less well-off in the Filipino community found themselves in, and the personal shame attached to this situation.

> Voice 1: That is why we go for [maximising the average income with a floor constraint]... since everybody has a need so everyone has [to have] something to sustain that need. In our society, the powerful overcomes the weak. So the more powerful you are, you can overcome the weak because of the inequalities and deficiencies of the weak. So the government should at least provide the person with protection so that a person could live decently. Because in any society, if you are the most educated and most trained, you will achieve a status, you will be more powerful. So the powerful can defeat the weaker ones and this is the example in the Philippine context. So the rich become richer and the poor loses more because there is no [income] redistribution. So, all individuals should receive an income for a person to live decently. (Transcripts: 66)
>
> Voice 2: [A basic income should be provided to all] because in our society when you are a low-income earner, people look down on you.(Transcripts: 40)

This last reported comment indicates some sympathy for the situation poor people in the Philippines find themselves in, in particular the lack of community respect that poor people experience. This matter of community respect for people raises an issue that has been stressed by Wolff (1998). Specifically, he argues that improving and maintaining the level of community respect for all poor individuals should be an important objective of any poverty alleviation program. Essentially this sort of idea was recognised, implicitly, in the previously-recorded comment.

(v) Finally, the participants, and in particular the government employees, were very concerned about balancing idealism with reality in any attempt to implement the floor-income constraint principle of justice. Some participants stated that for it to be possible to implement the unanimously agreed principle of justice, the level of the floor income should be set by

the government subject to its ability to generate tax revenue. The participants also pointed out that the floor constraint should be set at a level that did not, for various reasons, severely undermine the incentive to work.

> Voice 1: The problem with [the floor-income constraint principle] is that [individuals] will be discouraged to work...[Those paying taxes] will only work to a certain level because beyond that the government will get [most of their income]. So there will not be anyone to finance the additional income needed [to finance the floor-income constraint principle]. (Transcripts: 15).

2.5.4 A possible relationship between background or attitudinal variables and ranking of principles

Are the participants in the experiments too homogeneous in their value systems? The results that were derived from the answers of the participants to attitudinal and background questions were mixed. Responses to questions on their general attitude to income redistribution and political parties (for students and government employees), motivation for participation (for students only) and ideological preference and risks (for government employees only) revealed that the differences between the participants in MetroManila and outside of MetroManila were significant. The responses on questions regarding attitudes to income redistribution by the students were found statistically different at the .001 level and for government employees at the .003 level. Hence, the participants were not too homogeneous in their value systems. That said, for the other questions on motivation for participation (particularly earning money), attitudes towards life and minority groups and economic aspirations (in the form of level of salaries found satisfactory) and future career plans and aspirations, the responses by location were not found significantly different from each other.

Can the background of the participants explain the choice of principle by the group? As indicated in sub-section 2.4.3, the students came from different regions of the country and were specialising in different undergraduate courses. The government employees, on the other hand, were working with different agencies and had varied areas of specialisation. Government employees working outside of MetroManila were found to have had a higher proportion of their college expense financed by scholarships and loans compared to state employees working in MetroManila. This may be attributed to the relatively higher average income levels received by households in MetroManila than those outside of MetroManila[47]. The U.P. students and government employees were from different age groups, with public sector employees a lot older than the students. Despite the afore-mentioned differences in backgrounds, there was no variance in group choices of a principle of justice.

To determine further the possible relationship between background factors and support for the four principles of distributive justice, the correlations between the variables at the start of the experiment were calculated. The results showed a low correlation between background or attitudinal variables[48] used in the study and the

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47 The Family Income and Expenditures Surveys in the Philippines show that households in the National Capital Region (which is the same as MetroManila) had the highest average income among all the regions of the Philippines in 1985, 1988, 1991 and 1994 (NSO 1994 and 1996). Using constant 1988 prices, the average income levels of households in MetroManila were more than twice that of households in the Cordillera Administrative Region in 1988, 1991 and 1994 (NSO 1994 and 1996).

48 The background or attitudinal variables were adopted from Frohlich and Oppenheimer (1992: 207-9). However, variables concerning ideological preferences were modified to consider the Philippine context. Apart from Frohlich et al. (1987a and 1987b), I am not aware of any existing literature that studied the statistical correlation between background or attitudinal variables and the preference for particular principles of justice or rules to distribute incomes.

individual participants' preference for any of the four principles (see Table 6). The computed Pearson's correlation coefficient[49] ranged from negative 0.13 to positive 0.20.

Table 6. Correlations Between Background Factors and Initial Support for Four Principles

Variable	Principle: Floor Income	Maximum Average Income	Floor Constraint	Range Constraint
	Pearson's R	Pearson's R	Pearson's R	Pearson's R
Income redistribution attitudes	0.00	-0.04	-0.11	0.11
Money enough to affect choice	0.06	0.13	-0.13	-0.10
Joined for the money	-0.04	0.09	0.03	-0.05
Joined out of interest	-0.02	-0.07	0.02	0.04
Income is Luck	0.05	-0.03	-0.03	-0.04
One's action is for other people's pleasure	0.00	0.05	-0.03	-0.03
Accomplishment through individual efforts	0.04	0.07	-0.07	-0.02
Some groups are inferior	0.01	0.08	-0.11	-0.02
Percentage of college expenses met through parents' help	0.00	-0.04	0.09	-0.06
Percentage of college expenses earned by student	0.10	0.05	-0.08	-0.09
Percentage of college expenses through trust monies	-0.06	0.01	0.06	-0.02
Percentage of college expenses through scholarships	-0.01	-0.01	0.05	0.02
Percentage of college expenses through loans	0.03	0.04	0.00	-0.03
Percentage of college expenses through other sources	-0.02	0.01	-0.02	0.02
Minimum salary after graduation	0.05	-0.07	0.02	0.04
Minimum salary at age 35	-0.02	-0.13	0.10	0.07
Minimum salary at age 50	-0.06	-0.11	0.03	0.12
Ideology (+ = Liberal)	-0.04	-0.13	0.04	0.15
Years father was employed	0.02	-0.08	0.06	-0.02
Years mother was employed	-0.08	-0.02	0.09	0.02
With conservative ideas	-0.02	0.18	-0.07	-0.06
Some must fail	0.02	0.20	-0.06	-0.15
Plans a public service career	-0.02	0.06	0.06	-0.09
Plans a political career	-0.07	-0.02	0.08	0.03
Plans private business	-0.14	-0.13	0.18	0.08
Plans a private professional career	-0.08	-0.01	0.06	-0.01

[49] The coefficient of correlation p (rho) measures the degree of linear association between two variables; it ranges from -1.0 to +1.0 inclusive with -1 reflecting a perfect negative association and +1 to a perfect positive relationship (Gujarati 1995: 767).

Regression models were likewise constructed to determine the combined effect of attitudinal and background variables on the choice of principle by individual participants and on income redistribution in general (see tables 7a to 7e). Only four per cent of the variance in the floor constraint principle and at most nine per cent of the maximum income was explained by the regression models. In addition, only three per cent of the variance in the support for income redistribution was explained by the regression model. Moreover, only between two to five variables were found to be significantly related to the individual participants' choice of principles and income redistribution.[50] The foregoing results show the difficulty in explaining the choice of principle for income redistribution as well as income redistribution per se using background or attitudinal factors.[51]

Table 7a. Regression Model of Background Variables Explaining Support for the Floor Constraint Principle

Dependent Variable = Initial Support for Maximising the Average Income with a Floor Constraint

Model: Initial support for the Floor Constraint Principle = 25.95 - 0.35 (Attitude towards income redistribution) - 0.82 (Money is sufficient to affect choice) + 4.15 (Plans to be a private professional)

Number of participants	:	273
r^2	:	0.054
Adjusted r^2	:	0.043

50 Most of the attitudinal and background variables were not found statistically significantly related to the participants' preference for any of the four principles, even at a ten per cent level of significance.

51 Admittedly, other background or attitudinal variables may be used to explain the preference for a principle of justice. This study used the Frohlich-Oppenheimer-Eavey background and attitudinal variables, although they were modified to reflect the Philippine setting.

Variable	Coefficient	Standard Error	T-statistic	p (2-tailed)
Constant	25.95	4.40	5.90	0.000
Attitude towards income redistribution	-0.35	0.24	-1.49	0.138
Money is sufficient to affect choice	-0.82	0.43	-1.92	0.056
Plans to be a private professional	4.15	1.47	2.82	-0.005

Analysis of Variance

Source	Sum of Squares	Degrees of Freedom	Mean Square	F-Ratio	p
Regression	1303.24	3	434.41	5.09	.002
Residual	22967.82	269	85.38		

Table 7b. Regression Model of Background Variables Explaining Support for Maximising the Average Income Principle

Dependent Variable = Initial Support for Maximising the Average Income

Model: Initial support for Maximising the Average Income = 18.99 + 0.74 (Joined for the money) - 2.38 (Ideological preference) - 0.5 (Years father was employed before the age of seven) + 2.14 (Attitudes to political parties) + 3.72 (For some people to succeed, others must fail)

Number of participants	:	273
r^2	:	0.108
Adjusted r^2	:	0.091

Variable	Coefficient	Standard Error	T-statistic	p (2-tailed)
Constant	18.99	3.86	4.91	0.000
Joined for the money	0.74	0.48	1.56	0.120
Ideological preference	-2.38	0.91	-2.61	0.010
Years father was employed before the age of seven	-0.50	0.32	-1.57	0.116
Attitudes to political parties	2.14	0.62	3.45	0.000
For some people to succeed, others must fail	3.72	1.22	3.04	0.003

Source	Analysis of Variance Sum of Squares	Degrees of Freedom	Mean Square	F-Ratio	p
Regression	3116	5	623.1	6.475	.000
Residual	25694	267	96.232		

Table 7c. Regression Model of Background Variables Explaining Support for Maximising the Average With a Range Constraint Principle

Dependent Variable = Initial Support for Maximising the Average Income with a Range Constraint

Model: Initial support for the Range Constraint Principle = 9.38 - 0.79 (Money is sufficient to affect choice) + 0.002 (Minimum salary at the age of 50) + 2.28 (Ideological preference) - 2.58 (For some people to succeed, others must fail)

Number of participants	:	273
r^2	:	0.062
Adjusted r^2	:	0.048

Variable	Coefficient	Standard Error	T-statistic	p (2-tailed)
Constant	9.38	3.83	2.45	0.015
Money is sufficient to affect choice	-0.79	0.51	-1.53	0.127
Minimum salary at the age of 50	0.002	0.001	2.04	0.043
Ideological preference	2.28	0.99	2.29	0.023
For some people to succeed, others must fail	-2.58	1.38	-1.88	-0.062

Source	Analysis of Variance Sum of Squares	Degrees of Freedom	Mean Square	F-Ratio	p
Regression	2118.34	4	529.58	4.41	0.002
Residual	32167.38	268	120.03		

Table 7d. Regression Model of Background Variables Explaining Support for Maximising the Floor Income Principle

Dependent Variable = Initial Support for Maximising the Floor Income Principle

Model: Initial support for the Floor Income = 13.41 + 0.06 (Percentage of College Expenses Earned By the Student) - 3.82 (Plans private business)

Number of participants	:	273
r^2	:	0.028
Adjusted r^2	:	0.02

Variable	Coefficient	Standard Error	T-statistic	p (2-tailed)
Constant	13.41	1.59	8.42	0.00
Percentage of college expenses earned by the student	0.06	0.04	1.50	0.13
Plans private business	-3.82	1.71	-2.24	0.03

Analysis of Variance

Source	Sum of Squares	Degrees of Freedom	Mean Square	F-Ratio	p
Regression	879.56	2	439.78	3.82	.02
Residual	31088.21	270	115.14		

Table 7e. Regression Model of Background Variables Explaining Support for Income Redistribution

Dependent Variable = Index of support for Income Redistribution

Model: Index of Support for Income Redistribution = 14.83 - 0.18 (Joined for the money) + 0.33 (Joined out of interest) + 0.24 (Attitude to Political Parties) + 0.74 (Plans a Private Professional Career)

Number of participants	:	273
r^2	:	0.048
Adjusted r^2	:	0.033

Variable	Coefficient	Standard Error	T-statistic	p (2-tailed)
Constant	14.83	0.79	18.70	0.000
Joined for the money	-0.18	0.11	-1.60	0.111
Joined out of interest	0.33	0.15	2.20	0.028
Attitude to political parties	0.24	0.14	1.67	0.096
Plans a private professional career	0.74	0.38	1.97	0.050

Analysis of Variance

Source	Sum of Squares	Degrees of Freedom	Mean Square	F-Ratio	p
Regression	73.44	4	18.36	3.34	0.01
Residual	1470.65	268	5.49		

Are group choices of principles related to individual preferences or were they arrived at because of the way the experiments were structured? Data from the experiments revealed that at the start of the experiment and prior to the group discussion, the floor constraint principle already had the highest average mean support among the floor principles (see Table 8). This suggests that group choices were related to the preferences of individual participants.

Table 8. Mean Score* of Individual Preferences at Various Stages of the Experiments on Distributive Justice (n=320)

Stage of the Experiment	Maximum Floor	Maximum Income	Floor Constraint	Range Constraint
Start of the experiment				
Mean	10.44	14.88	21.25	14.41
Standard deviation	(10.73)	(10.26)	(9.39)	(11.18)
Prior to Group Discussion				
Mean	11.28	14.56	21.72	13.22
Standard deviation	(10.35)	(10.26)	(9.39)	(11.18)
After the Group Discussion				
Mean	9.66	12.34	26.50	11.64
Standard deviation	(9.21)	(9.09)	(7.36)	(10.03)
F-statistic (between the start and after group discussion)	1.36	1.28	0.63	1.24
p =	0.003	0.015	0.000	0.026
F-statistic (between prior and after group discussion)	1.26	1.44	1.58	1.22
p =	0.019	0.001	0.000	0.037

* The scores represent the position of the four main principles in the preference ranking of the individual participants: first place receives a score of 30, second place gets 20, third place gets 10 and last place gets zero (adapted from Frohlich and Oppenheimer 1992: 78, footnote 13).

Individual preferences, however, shifted over the course of the experiment (see Table 9). At the start of the experiment, the floor constraint principle already had the most support among the four principles, followed by maximising the average income. About 45 per

cent (130 of 290 participants) ranked the floor constraint principle as their first choice compared with 22 per cent (63 of 290) of the total participants who chose maximising the average income principle. After passing the test (and choices with payoffs for those who did not undergo production experiments), the floor constraint principle continued to have the most support from the participants at 46 per cent (134 of 290) of the participants. In both stages of the experiment, Rawls' second principle, maximising the floor income, received the least support.

Table 9. Shifts in Individuals' First Place Rankings of Principles Prior to Group Discussion

	Maximum Floor	Maximum Income	Floor Constraint	Range Constraint	Total
1. Start of the Experiment	41	63	130	56	290
2. Prior to Discussion	37	71	134	48	290
3. Net Changes	-4	8	4	-8	0
4. Gross Gains	17	39	46	28	130
5. Gross Losses	-21	-31	-42	-36	-130
6. Desertion Rate (Line 5/ Line 1)	0.51	0.49	0.32	0.64	0.45

The participants were also asked to indicate their level of confidence in ranking the principles on a scale of 1 (very unsure) to 5 (very sure). The data showed that 54 per cent (157 of 290) of the participants were either sure or very sure about their ranking at the start of the experiment (Table 10). Of those who changed their ranking, there were more participants who gained confidence in their answers as the experiments continued. The increase in the level of confidence may be attributed to their reading the rest of the handbook, passing the test and going through the choices with payoffs part of the production experiments.

Table 10. Changes in Participants' Confidence in Rankings Prior to Group Discussion

Number of participants	290		
Mean score for degree of confidence:			
Start of Experiment	3.35	F-statistic	1.25
Prior to Discussion	3.77	p (one-tail)	0.03

	Losses in Degrees of Confidence				No Change	Gains in Degrees of Confidence				Net Changes
Confidence Level	**4**	**3**	**2**	**1**		**1**	**2**	**3**	**4**	
Very Unsure					0	3	0	2	1	6
Unsure				-2	25	6	44	4		52
No opinion			0	-2	4	14	0			12
Sure		-2	-8	-6	130	26				10
Very Sure	0	-1	0	-4	6					-5
Total	0	-3	-8	-14	165	49	44	6	1	75
Percent of 290		1	3	5	57	17	15	2	0	26

After the group discussion, the third principle continued to gain the support of the participants (see Table 11). One hundred and one participants decided to change their first place ranking from the three other principles to the floor constraint principle. Moreover, all of those who chose the third principle prior to the group discussion retained their preference (a gross loss of zero). However, while the unanimous choice of all the groups was the floor constraint principle, nevertheless, even after the discussion of the issues at stake, some 19 per cent (55 of 290) of all participants (see Table 11) individually still preferred some other system of justice than the floor-income constraint. In order to achieve unanimity, however, these dissenting participants saw the need to compromise on the system of justice they preferred to have applied, and consequently came to agree to some acceptable alternative. By compromising in this way each group of participants avoided the threat of having some unsatisfactory system of justice arbitrarily imposed upon it.

Table 11. Shifts in Individuals' First Place Rankings Over the Time of Decision

	Maximum Floor	Maximum Income	Floor Constraint	Range Constraint	Total
1. Prior to Discussion	37	71	134	48	290
2. After Discussion	17	19	235	19	290
3. Net Changes	-20	-52	101	-29	0
4. Gross Gains	0	1	101	2	104
5. Gross Losses	-20	-53	0	-31	-104
6. Desertion Rate (Line 5/ Line 1)	0.54	0.75	0	0.64	0.36

This willingness to compromise by the dissenting minority is by no means an obvious and certain pattern of behaviour. If the system of justice that the majority of the participants ranked first was seen by the minority as being unfair and unjust, then this group may well have preferred to have an unknown system of justice arbitrarily imposed. This action is taken here to represent some unknown level of political and social chaos. For the minority, this alternative could not be worse than the system of justice the majority wished to have applied. Thus the legitimate and reasonable interests of the minority should not and cannot be ignored when a community decides on a system of justice. These interests are viewed as those that no informed and impartial person could object to.[52] Thus any system of justice that eventually is unanimously agreed upon must be seen to be the fairest system of justice that can be hoped for in the circumstances by all sections of the community. This would seem to be the position adopted, at least implicitly, by the participants in the experiments where unanimous agreement was required.

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52 The sort of issues just raised in the main text have been emphasised by Barry (1995: 160 -1, 211-2). Also see Barry (1998).

The previously reported results also indicate that each of the two types of uncertainty that the participants were faced with made a contribution towards each group reaching the unanimous agreement that the floor-income constraint system of justice should be applied. To begin with, the uncertainty, created by the threat that an unknown system of justice arbitrarily will be imposed on a group if unanimous agreement on a system of justice can not be reached *within* this group no doubt encouraged individuals within each group to compromise, subject to the qualification set out in the previous paragraph in order to reach this unanimous agreement. Nevertheless, the system of justice unanimously agreed to need not have been the same for all the groups. However, to induce all groups to adopt the same system the second type of uncertainty is required - which is that all the participants are faced with an uncertain income stream in the initial situation. This type of uncertainty encouraged, after some group discussions, the great majority of participants to adopt as their first preference a system of justice that ensured that no individual would receive a level of income below some basic floor level (see Table 11). This level of first preference for this system of justice contributed to the same single system of justice being adopted across all groups, that is, after a minority of participants had compromised on the system of justice they preferred to see adopted.

Of the four principles of justice, the principle maximising the average income was observed to have the highest desertion rate (75 per cent of the total number of desertions). This may be attributed to the comment of most participants that since the third and fourth principle also maximises the average income (although the incomes are subjected to a floor or a range constraint) they chose the floor constraint principle because a minimum income is provided for. However, despite the

changes in individual preferences throughout the experiment, the groups chose a common principle during the voting phase. Based on the transcripts of the group discussion, it may be surmised that the choice of principle may be the result of a bargaining process among the members of the group.

As expected, the level of confidence of the majority of the participants improved after the group discussion (see Table 12). Twenty-one per cent (60 out of 290) of the participants indicated a change in their level of confidence. The net change in confidence was found to be highly statistically significant at the .001 level.

Table 12. Changes in Participants' Confidence in Rankings Over The Time of Decision

Number of participants					290					
Mean score for degree of confidence:										
Prior to Discussion					3.77		F-statistic			2.06
After Discussion					4.09		p (one-tail)			0.001
	Losses in Degrees of Confidence				No Change	Gains in Degrees of Confidence				Net Changes
Confidence Level	4	3	2	1		1	2	3	4	
Very Unsure				0	0	1	0	2	1	4
Unsure				0	11	1	23	4		28
No opinion			0	0	3	11	0			11
Sure		0	-1	-1	177	15				13
Very Sure	0	0	0	0	39					0
Total	0	0	-1	-1	230	28	23	6	1	56
Percent of 290			.03	.03	79	10	8	2	.03	19

Figure 1 shows the participants' first place rankings in the three phases of the experiment: at the start (series 1); after the tests and before discussion (series 2); and after the choice has been made (series 3). The figure shows that the floor constraint principle (or the third principle) has consistently been chosen as the participants' first choice among the

four principles over the course of the experiment. The floor constraint principle also had the lowest desertion rate between the first two phases of the experiment (series 1) and between the last two phases (series 2) as shown in Figure 2.

Figure 1. First-Place Rankings at Three Successive Points in the Experiment

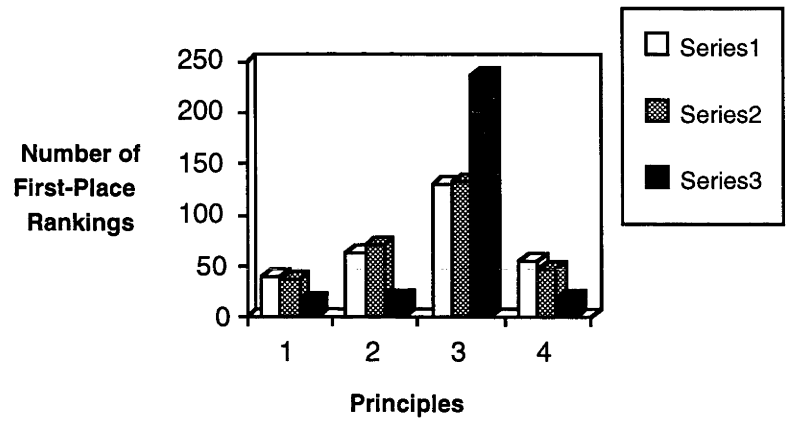
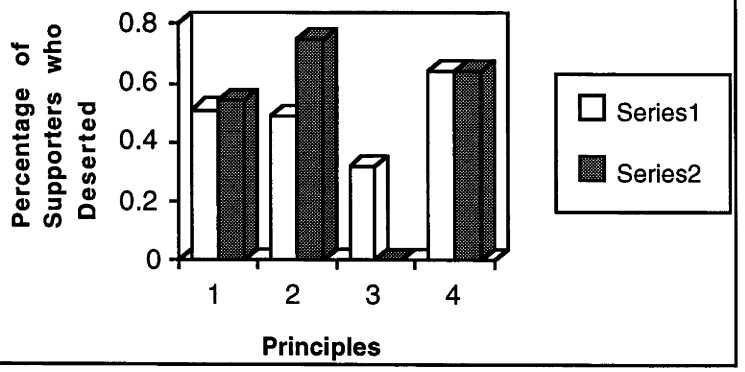


Figure 2. Rates of Desertion from principles over the Course of the Experiment



As expected, changes in first-place rankings and level of confidence were observed to be minimal in experiments where the participants were not allowed to discuss and choose a principle as a group. Table 13 shows that after the author imposed the floor constraint principle on the group at a level of 6,000 pesos per individual per month, the total desertion rate was a low 23 per cent. The range constraint principle had no desertions, followed by the floor constraint and maximising the average income principles, both at 33 per cent. Since there was more shifting of first-place rankings when the group was given a chance to discuss and choose a principle rather than when the principle was imposed, it is plausible that going through the discussion phase may have resulted in a compromise among the group members. When the principle was imposed on the group, net changes in the participants' level of confidence was zero and statistically insignificant (see Table 14). Hence, discussion of principles as a group may have a positive effect on the participants' level of confidence in their rankings.

Table 13. Shifts in Individuals' First Place Rankings of Principles Over the Time of Imposition of Principle

	Maximum Floor	Maximum Income	Floor Constraint	Range Constraint	Total
1. Prior to Imposition	2	3	9	8	22
2. After Imposition	2	4	7	9	22
3. Net Changes	0	1	-2	1	0
4. Gross Gains	2	1	1	1	5
5. Gross Losses	-1	-1	-3	0	-5
6. Desertion Rate (Line 5/ Line 1)	0.50	0.33	0.33	0	0.23

Table 14. Changes in Participants' Confidence in Rankings Over The Time of Imposition of Principle

Number of participants					22*					
Mean score for degree of confidence:										
Prior to Imposition					3.73		F-statistic			1.03
After Imposition					3.64		p (one-tail)			0.47
	Losses in Degrees of Confidence				No Change	Gains in Degrees of Confidence				Net Changes
Confidence Level	4	3	2	1		1	2	3	4	
Very Unsure				0	0	0				0
Unsure				0	3	1	1			2
No opinion				0	0	0				0
Sure		0	1	1	9	2				0
Very Sure	0	1	0	1	2	0				-2
Total	0	1	1	2	14	3	1			0
Percent of 22		4	4	9	64	14	4			0

* Excludes tied rankings for first place.

The effect of choice of the re-distributive principle on productivity is now considered in more detail.

2.5.5 The stability of social preferences and incentives

The experiments that attempted to generate the greatest amount of information were those requiring that a task be performed by the participants. As mentioned in section 2.3, the nature of the task was unknown at the time of initially deciding on a system of justice in distribution. In these experiments those groups that were free to choose a principle of justice unanimously agreed on the floor-income constraint principle (see Table 2). The results of these production experiments likewise revealed that prior to the performance of the first task the floor-income constraint principle was adopted as the first choice by 97 per cent (75 of 77) of the individual participants (see Tables 15 and 15a). This excludes the 23 participants who had the floor constraint imposed.

Over the course of the repeated production and redistribution part of the experiment, those who ranked this principle first settled at 95 per cent (73 of 77).

This stability of these private preferences is of interest for it indicates that after individuals had experienced the consequence of imposing the tax-cum-transfer system implied by the application of the chosen principle of justice, individuals hardly changed their preference for the floor-income constraint principle. What marginal changes in mind that did take place indicate (see Table 15) that individuals now tended to adopt a more egalitarian principle than the floor income constraint principle as their first preference; namely, the principle of maximising the income for the least well-off in the community (that is a version of Rawls' second principle of justice).

Confidence in the participants' first-place rankings was also noted to increase over time. Table 16 shows the improvement in the level of subjects' confidence in their rankings after production and redistribution for all types of experiments. However, the changes in the confidence level were not found statistically significant when the principle was imposed on the group.

Table 15. Individual's First Place Rankings Over the Course of Production (N=100)

Principle	First Place Rankings after:		Changes in First-Place Rankings		Net Changes
	Choice or Imposition	Production	-	+	
Floor Constraint	83	80	-3	0	-3
Range Constraint	10	10	-1	1	0
Maximum Income	3	3	-2	2	0
Maximising the Floor	4	7	0	3	3

Table 15a. Individual Participants' First Place Rankings Over The Course of Production by Type of Experiment

Principle (Type of Experiment)	First-Place Rankings after Group Choice or Imposition	First-Place Rankings After Production (Third Task)	Changes in First-Place Rankings
Floor Constraint	83	80	-3
Unanimity	(53)	(52)	(-1)
Majority Rule	(22)	(21)	(-1)
Imposed	(8)	(7)	(-1)
Range Constraint	10	10	0
Unanimity	(0)	(0)	(0)
Majority Rule	(1)	(2)	(+1)
Imposed	(9)	(8)	(-1)
Maximum Income	3	3	0
Unanimity	(0)	(1)	(+1)
Majority Rule	(0)	(0)	(0)
Imposed	(3)	(2)	(-1)
Maximising the Floor	4	7	+3
Unanimity	(0)	(0)	(0)
Majority Rule	(1)	(1)	(0)
Imposed	(3)	(6)	(+3)

Table 16. Impact of Production and Redistribution on Subjects' Confidence in Rankings

ALL EXPERIMENTS

	Before Tasks	After Tasks	Differences	F-statistic	p(one-tail)
Number of Participants	100	100			
Mean	3.70	4.15	0.45	1.52	.02
Standard deviation	0.92	0.74			

UNANIMITY EXPERIMENTS

	Before Tasks	After Tasks	Differences	F-statistic	p (one-tail)
Number of Participants	53	53			
Mean	3.64	4.13	0.49	1.47	.08
Standard deviation	0.92	0.76			

MAJORITY-RULE EXPERIMENTS

	Before Tasks	After Tasks	Differences	F-statistic	p (one-tail)
Number of Participants	24	24			
Mean	3.71	4.33	0.62	2.18	.03
Standard deviation	0.85	0.56			

IMPOSED-PRINCIPLE EXPERIMENTS

	Before Tasks	After Tasks	Differences	F-statistic	p (one-tail)
Number of Participants	23	23			
Mean	3.74	4.00	0.35	1.40	.22
Standard deviation	1.01	0.85			

As for the matter of why individuals continued to select the floor-income constraint principle during the repeated production and re-distribution process is something that needs some explanation. This is especially so since in the second and third rounds of the production experiments, essentially the 'veil of ignorance' had been lifted; that is individuals now had a good idea of their abilities to perform the previously-unknown assigned task. Those who were fortunate enough to have the abilities to perform the required task effectively apparently now had the incentive to set as their first choice the principle of maximising the average income in the community. In contrast, those who were not capable of performing the required task effectively had the incentive to set as their first preference a more egalitarian principle than if the floor-constraint principle be applied. Nevertheless, as just indicated the proportion of the participants who nominated the floor-constraint system of justice as their first choice hardly altered over the repeated plays of the production game. This persistence of these preferences amongst the more fortunate possibly was due to these individuals developing some empathy with the less fortunate participants who, through no fault of their own, did not possess the skills required to allow them to generate an income above the agreed floor-income level. Consequently, for compassionate reasons the better-off participants continued to agree to select the floor-constraint principle of justice. As for the least fortunate participants, the persistence of their preferences

may reflect a recognition of the view that the agreed system of justice was the best that could be hoped for in the circumstances.

The sympathy by the better-off participants for those less fortunate also seems to have been reflected in the work behaviour of the better off. This matter will be returned to towards the end of this section. For the present, however, it is noted that the data set out in table 17 indicates that there was a significant increase in the level of average productivity[53] over the sequence of production tasks. It is possible that part of the reason why the participants, on average, produced a greater level of output after each task is that they learned how to become more skilled at performing the assigned task.[54] What does not appear to explain this improvement in labour productivity, however, is the use of democratic processes to decide on a system of justice. The conclusion was inferred from the data set out in Table 18 that indicates that the improvements in the levels of productivity, for both the choice and imposed experiments, were not statistically significantly different from one another.

Table 17. Overall Impact of Production Experience on Productivity

Type of Experiment	First-Period Mean	Last-Period Mean	F-statistic	p	N
All experiments	8.01	10.06	2.33	.00	100
Choice experiments	8.16	10.13	2.20	.00	77
Imposed-rule experiments	7.52	9.83	2.87	.01	23

53 Labour productivity was measured by counting the spelling errors each participant took account of and accurately corrected.

54 A similar point was made by Frohlich and Oppenheimer (1990: 469) within the context of the empirical results they obtained; namely, that labour productivity tends to improve with an increase in the number of similar tasks performed.

Table 18. Overall Impact of Type of Experiment on Production: Choice Vs. Imposition

Stage of Production	Choice Experiment Mean	Imposed Experiment Mean	F-statistic	p	N
First production	8.35	7.52	1.40	.22	23*
Last production	10.26	9.83	1.55	.16	23

* To be comparable with imposed experiments, the sample size of choice experiments was reduced from 77 to 23.

That said, when the participants were further differentiated into those who paid taxes and those who were recipients of income transfers, statistically significant differences in the increase in the level of average productivity do emerge (as indicated in Table 19)[55]. While the level of productivity increased significantly for both groups, the difference in the level of productivity between the first and the last task was greater for the recipients of income transfers than that for those who were taxpayers.

Table 19. Impact of Tax Status Changes on Productivity: All Experiments

Tax Status	First-Period Mean	Last-Period Mean	F-statistic	p	N
Taxpayers' production	10.62	11.88	1.84	.02	43
Recipients' production	5.41	8.14	2.97	.00	44

When the tax-paying and the income-recipient participants were disaggregated, however, into those who participated in choice and those who participated in imposed experiments, the most statistically significant increase in the level of productivity was observed for recipients in the choice experiments (see Table 20). Nevertheless, the mean productivity rose for both the tax-payers and the income-recipient of participants when the principle of justice was imposed on the group. In these experiments, however, the increase in the level of productivity

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55 Of the 100 participants in the production experiments, there were 13 students whose contribution to group output was equal to the average group output. They were excluded from the analysis.

for tax-payers was found not to be statistically significant (see Table 20). It may be inferred, therefore, that for taxpayers the lack of freedom to choose a principle of justice may have served as a disincentive for this group of participants to increase their level of productivity. Not too much should be made of this point, however, since comparatively few (only five) experiments were carried out where the principle of justice was imposed.

Table 20. Impact of Experimental Treatment Tax Status Changes on Productivity: All Experiments

CHOICE EXPERIMENTS

Tax Status	First-Period Mean	Last-Period Mean	F-statistic	p	N
Taxpayers' production	11.03	11.94	1.79	.04	35
Recipients' production	5.81	8.03	2.67	.00	32

IMPOSED EXPERIMENTS

Tax Status	First-Period Mean	Last-Period Mean	F-statistic	p	N
Taxpayers' production	10.38	11.63	2.68	.11	8
Recipients' production	4.60	8.20	3.20	.05	10

The experimental results reported in tables 15 to 20 suggest that deceptive behaviour, with respect to the operation of the tax-cum-transfer system, may be less severe than some may believe.[56] Nevertheless, some may find it surprising that the average level of labour productivity, for at least those participants who paid income taxes, did not decrease. In fact it increased over the three runs of the experiment. There are a number of explanations that can be put forward to explain, at least in part, this behaviour. The first explanation (or partial explanation) is that,

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56 A similar inference can be drawn from the relevant results reported in Frohlich and Oppenheimer (1992).

as is well known,[57] the imposition of an income tax creates a negative compensated substitution effect which induces individuals to demand more leisure and a positive income effect which induces individuals to demand less leisure (more work) to offset for the loss of personal income resulting from having to pay taxes. This is assuming that leisure is a normal good. Thus it is possible that the positive income effect for leisure at least just offsets the negative compensated substitution effect. In these circumstances the average labour productivity for tax payers would not fall as a result of imposing the income tax. The same argument applies with respect to the income-transfer recipients.

The weakness with this argument is that it does not explain why the income effect takes the large positive (relative to the negative substitution effect) value that it does. To provide part of such an explanation it could be suggested, by drawing on an earlier argument, that the tax payers who are the better off in the community have sympathy and compassion for the less well-off who, through no fault of their own, do not possess the required skills to allow them to earn a pre-transfer income that is above the agreed floor income level. Consequently, the better off are willing to work relatively diligently in an attempt to generate the personal incomes required to provide the tax revenue used to finance the income-transfers required to satisfy the floor-income constraint. In this way the members of the group concerned can maintain harmonious relations among themselves.

It may also be argued that the participants may have recognised that if deceptive behaviour became prevalent, then the system of justice

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57 See, for example, Atkinson and Stiglitz (1980) and Putterman, Roemer and Silvestre (1998: 876).

initially unanimously agreed upon would come to be rejected by a sizeable proportion of any group. If this occurred in a community this would face this community with the possibility of political and economic chaos. The participants also may have realised that if this possibility became a reality then this would make the vast majority if not the whole group worse off. What more, it would not be known who (if anyone) would be made better off by this chaotic situation. Thus this group, in which deceptive behaviour is prevalent, is faced with a variation of the Rawlsian veil of ignorance. Whereas the Rawlsian veil of ignorance refers to the situation *before* an egalitarian system of justice has been decided upon, the situation referred to here (with its associated veil of ignorance) arises *after* such a system of justice has been decided upon. Faced with this threat, and given that the system of justice they initially agreed to is seen to be fair, these considerations induced the participants to recognise that it is to the advantage of each individual to behave honestly (or reasonably so) with respect to the implementation of the tax-cum-transfer system.

2.6 An alternative to Arrow's social choice framework

The experimental results reported in the previous section suggest that the design of the game-theoretic experiments underlying these results indicate how a reasonably detailed answer can be provided for question 2 (and hence, a positive answer can be given to question 1) in section 2.2.2. Specifically, the design of these experiments suggests that if some of the Arrovian conditions are replaced with appropriate alternative conditions, then this will ensure that in certain communities, at least, the resulting decision process employed will result in its members

agreeing, unanimously, on a single system of prudential justice in distribution.

In setting out these alternative Arrovian conditions, first it is noted that it is clear from the group discussions and the group decision procedures employed in the experiments that the weak Pareto principle (**P**) was applied during the decision process. Specifically, if all individuals in any single group of participants - a group which is taken to represent the community - preferred some social objective, x, over another, y, then this group preferred x to y.

As for the range of relevant alternative conditions to the Arrovian conditions, to begin with condition **U** (unrestricted domain) it is replaced by two alternative conditions. Within the context of devising one of these alternative conditions, I readily concede that, and as was emphasised in sub-section 2.1.1, cultural factors and social circumstances probably contributed to the experimental results reported in the previous section. This statement is based upon the fact that: (i) each group of Filipino participants agreed, unanimously, on the floor-income constraint system of justice in distribution, whereas (ii) for the experiments, that used participants from universities in North America, Poland and Australia, respectively, only between 70 and 80 per cent of all groups agreed unanimously on this system of justice (See the discussion near the end of sub-section 2.1.1). This marked difference in the results obtained for these two sets of identical experiments probably can be explained to some degree, at least, by the different social cultures from which each set of participants was drawn.[58]

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58 As for the relevant differences in cultural values, possibly this can be explained by the Filipino participants being more aware, than the participants in the comparable

It follows that cultural factors appear to influence individual rankings of relevant alternatives. Thus any relevant ranking is likely not to be the same for any set of individuals. To allow for this reasonable possibility, the following condition is recommended:

CS (Cultural Similarities) The members of a diverse community who are to rank any alternatives, x and y, are from a society possessing cultural characteristics, at least with respect to perceptions concerning matters of economic uncertainty, that are the same as (or very similar to) that for the Filipino participants in the reported game-theoretic experiments.

The experimental results presented in the previous section suggest that one of the implications of imposing condition **CS** is that members of a community that satisfies this condition tend to be risk averse. That said, this condition does not rule out the possibility that the members of such a community have diverse views on a range of other issues of social importance such as religious matters, international affairs, legal systems and so on, and these alternative views are respected by members of the community. In other words, the community is pluralistic. In addition, while condition **CS** places limits on the sort of community that is being considered, this community, as alluded to earlier in section 2.1.3, is likely to be representative of a relatively large proportion of the world's communities (that will tend to be found in developing countries).

The other condition that leads towards replacing condition **U** (unrestricted domain) is one that allows for the uncertain economic circumstances that arise when risk and credit markets are incomplete or

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experiments, of the difficulties associated with coping with relevant severe economic uncertainties of the kind represented in the game-theoretic experiments - uncertainties of the type prevalent in developing countries. (See the discussion near the end of sub-section 1.1 in the main text.)

absent in a community. In addition, the alternatives to be considered need to be restricted to the alternative systems of justice listed in section 2.3.

R (Restricted Domain): For the set of the four alternative systems of justice in distribution, listed in section 2.3, to be considered by a diverse community, the domain of the social welfare function is restricted to orderings of alternatives that individuals make when faced with uncertainty of the form that each individual does not know, in the initial decision period (that is, the original position), what level of income s/he will receive in the future.

The experimental results also suggest (see Tables 11 and 15) that facing individuals with the uncertainty of the type reflected in condition **R**, this was not enough, in itself, to induce unanimous agreement over a principle of justice - a minority (around 19 per cent) of the participants individually preferred a system of justice other than the floor-income constraint principle. And this was so even though condition **CS** applies. To achieve the desired unanimous agreement the experimental results indicate that the community needs to be placed in a threatening context where, if unanimous agreement is not reached on a single system of justice, dire consequence may result. That said (and as noted in the previous section), any system of justice that a community may agree upon will need to be seen as preferable to the threatened alternative. It is also recalled that the point was made in section 2.2 that condition **I** (Independence of Irrelevant Alternatives) does not take into account information concerning the context within which important community decisions are made. Thus the following alternative condition is recommended:

TC (Threatening Context): Individuals in a diverse community have to order any alternatives x and y within the context that there is the threat that if a social ordering is not unanimously agreed to by members of this community then a randomly-selected alternative may be imposed upon the community. How individuals may order x and y within any other context is completely disregarded.

Attention next turns to finding an alternative to condition **CR**. The reason for finding a replacement is because, as indicated in section 2.2, condition CR requires more information than is required for a community to make a decision on which of the relevant alternatives it prefers to all others. The condition that was employed, implicitly, in the previous game-theoretic experiments is the following:

WCR (Weak Collective Rationality): If the social welfare function provides orderings of alternatives that are such that x is socially preferred to y_i, for all i, where i is no less than 3, (xPy_i, $i \geq 3$), then x is socially preferred to all the other alternatives.

Satisfying this condition clearly is far less demanding than attempting to satisfy condition **CR** (which requires that the ordering of the alternatives be complete and transitive), or a weakened version of **CR** which allows quasi-transitivity or acyclic orderings.[59] That said and as indicated in section 2.2 and implied by the results for the game-theoretic experiments, satisfying condition **WCR** may be all that is required for a community to reach an acceptable relevant decision.

Finally, the experimental results suggest that the non-dictatorship (**D**) condition can be replaced by a unanimity condition.

Un (Unanimity): For any set of alternatives, x and y, there must be unanimous (or nearly so) agreement by the members of the community (composed of at least two members) over the ordering of these alternatives such that if any individual prefers x to y then, without this person coercing anyone else to adopt this ordering, all (or nearly all) other individuals in the community accept this ordering.

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59 Quasi-transitivity requires that xPyPz but not xIyIz, where P denotes 'preferred to' and I denotes 'indifference to'. Acyclic preferences requires xPyPz but not zPx (Mas-Colell et al. 1995: 800).

Drawing these various comments together, along with bearing in mind the experimental results presented in the previous section, the following is stated:

Conjecture: If a community satisfies condition **CS**, and during the process of this community attempting to decide on the ordering of alternative systems of justice in distribution the conditions **P**, **R**, **TC** and **WCR** are imposed on the decision procedure, then **Un** will be satisfied, and the system of justice unanimously (or nearly so) agreed upon is a version of Rawls' first principle of justice and the priority rule, or a version of Popper's principle of minimising avoidable suffering.

This conjecture is not contradicted by the experimental results presented in the previous section. That said, it is a possibility that other sets of participants cannot agree unanimously on the floor-income constraint system of justice. This may be so even though the participants are drawn from a population that satisfies condition **CS** and conditions **P**, **R**, **TC**, **WCR** and **Un** are imposed on the community decision procedures. Whether this is so, or not is a matter that needs to be tested at some future time.

To conclude this section it is noted that the floor-income constraint system of justice does not provide a precise set of criteria for ranking social states. In particular, this principle of justice does not say anything about where the floor level of income should be set. It is also recalled that in section 5 it was pointed out that the participants in the experiments did not agree on the level of the floor income. This does not mean, however, that social states cannot be ranked by way of making use of this system of justice. This is demonstrated in Martina (1998a) by way of drawing on Atkinson and Bourguignon (1987) and Atkinson (1992). Specifically, even though the level of the floor well-being, or income level (or poverty line) is not known, specific use can be made of

the Rawlsian system of justice in distribution and basic information on the characteristics of groups of households in the community, to provide a reasonably satisfactory ordering of relevant social states can be made.[60] Such a comparison may be all that is required from the point of view of assessing social policy directed at improving the lives of members of a community.

2.7 Conclusions

The discussion in this chapter set out to determine if diverse groups of Filipinos could come to agree, unanimously (or nearly so), that the alleviation (if not the elimination) of poverty in the Philippines was a social priority. The reason for wishing to generate this information is that, as indicated at the beginning of sub-section 2.1.1, the authorities in the Philippines need to know the level of support that they will receive when making a concerted attempt to alleviate poverty in the Philippines. It was also indicated there that care is needed to be taken in the methods used to generate this information. If inappropriate methods are employed then misleading information is likely to be generated. It is important, therefore, and as indicated in sub-section 2.1.1, that individuals are faced with the consequences of their decisions. For this reason game-theoretic experiments were used to determine if relevant decisions could be made by diverse groups of Filipinos. In these experiments the participants are faced with comparatively severe forms of economic uncertainty and threats of uncertain social, political, and/or economic

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60 Briefly, these techniques require that an appropriate range of income levels, or levels of well-being, is taken into account for each characteristic group of households when comparing social states. It is then determined if one social state dominates, in some appropriate way, another social state.

consequences if certain decisions are not made. These circumstances seem to reflect relevant circumstances that the representative person in Philippine society is faced with.

The results reported in section 2.5 indicate that groups of participants from comparatively diverse sections of Philippine society can agree, unanimously, that the social objective of eliminating poverty is a social priority. The particular system of justice unanimously agreed upon is a simplified version of Rawls' first principle of justice and the priority rule and Popper's principle of minimising avoidable suffering. What is more, these participants expressed a range of motives for agreeing to this system of justice. These motives were expressed in language that hints at arguments to be found in a range of contemporary literature in political philosophy that deals with matters of justice in distribution. Most important of all, these motives were expressed in deeds as well as words. In the instance of the production experiments, in particular, participants were willing to accept the consequences of their agreements by contributing labour to the successful implementation of the system of justice initially unanimously agreed upon. For the reasons also indicated at the beginning of the introduction, these experimental results should be of some interest to policy-makers in the Philippines.

That said, and as indicated throughout this chapter, these experimental results have far wider implications than just determining if diverse groups in the Filipino community can agree unanimously on an egalitarian system of justice. Specifically, the reported experimental results indicate what conditions that underlie Arrow's impossibility result need to be replaced with alternative conditions that reflect important

aspects of the world as it is (at least in a developing country such as the Philippines) in order to generate the possibility result that a community can agree unanimously on the floor-income system of justice. One general factor that contributes to this positive result is that of individuals being faced with relevant forms of uncertainty. The presence of this uncertainty alone does not seem to be enough, however, to generate the level of agreement required. As pointed out in the previous section, there is empirical experimental evidence to indicate that in certain communities unanimous agreement will not be reached even though these communities are faced with relevant types of uncertainty. The reason for these conflicting results seems to be that the culture, ethos and the life experiences of the members of the community concerned do seem to be factors of some importance for determining if a community is capable of reaching wide agreement, eventually, on a single system of justice in distribution. This speculative statement needs to be tested with further relevant empirical research.

Part II

Causes of Poverty and Designing Poverty-Alleviation Programs

Chapter 3

Possible Causes of Variation in the Incidence of Poverty and Household Incomes - A Study at the Macro Level

3.1 Introduction

What factors cause the level of poverty, household income and per capita income to differ across the rural areas of the Philippines? This is the central question that the analysis presented in this chapter attempts to answer. In the process of attempting to reach a deeper understanding of the causes of poverty in the Philippines it is hoped that worthwhile insights can be derived as to how to improve the design of poverty-alleviation policies in the Philippines - and in the rural Philippines in particular.

The causes of poverty are complex. To begin with it is difficult to attribute its causes to a single factor. In a review of the relevant literature dealing with poverty and related topics, Abad and Eviota (1985) grouped the explanations of the causes of poverty in the Philippines into four categories - although categories that are not all mutually exclusive. First, it arises from the anti-development values, attitudes and lifestyles of the poor; in others words the poor are to blame for their own plight. Second, poverty is the inevitable outcome of historical circumstances and the

industrialisation process. Third, it is the result of power conflicts in which the poor do not have access to decision-making processes; and finally, poverty is the outgrowth of a political economy which has consistently concentrated the ownership of productive assets and resources in the hands of a few people.

As it stands, the notion that the poor are against development per se is not a convincing argument. Surely poor people would not oppose public action whose ultimate objective is to raise a person's level of well-being. Nevertheless, it is possible that poor people, due to their circumstances, do come to believe that they cannot expect, or are not entitled to, any improvement. This does not mean, however, that no attempts should be made to improve their situation. Rather, by providing assistance to allow these persons to be more capable of taking advantage of their potential to gain access to goods and services required to improve their well-being, they will indeed be able to improve the quality of the lives they lead. What is more, they probably will come to develop higher expectations as to what they and their children can achieve.

The term 'anti-development' is most often equated with anti-modernisation. It should be recognised, however, that poor people are often under-nourished, uneducated, landless, faced with poor infrastructure facilities and have little access to support services such as credit and marketing facilities. Thus the risks that poor people face within the context of economic change (such as that associated with the introduction of a new technology) are relatively high, compared to those experienced by people who are able to insure in various ways against this economic uncertainty. For instance, it could well be that there is not

sufficient evidence to determine if the introduction of high-yielding varieties in the rice-producing areas of the Philippines will bring benefits to the less well-off farmers. Thus the under-insured risks that the income-poor farmers face as a result of the adoption of a new rice technology are higher than the risks for the better-off farmers - farmers who have access to assets that can be used as collateral to raise credit. And this credit can be drawn upon to finance the purchase of complementary farm inputs such as seeds, fertilisers, pesticides, tractors and water. In addition, should the new technology be unprofitable, this credit can be used to smooth out household income streams.

It follows that since poor farming households have little or no access to these financial resources, they cannot afford to make mistakes concerning the allocation of resources they control. To do so would face them with destitution. To add to their difficulties, poor farmers are also likely to be illiterate, so that learning about modern farming techniques is relatively difficult. Thus, in this respect alone, poor households are constrained in their abilities to take advantage of development programs.

In short, poor people in the rural Philippines have a range of good reasons for not participating in development programs to the level that others may expect. The reason is that these programs, when viewed from the perspective of poor individuals, may be seen to be comparatively risky economic ventures.

The second explanation (mentioned earlier) as to why people are poor argues that in the pursuit of economic growth - whether through government policies or market mechanisms - certain segments of the population would unavoidably be marginalised. In the light of recent

research, this argument is no longer tenable as it applies to developing countries. To be specific, empirical evidence based on cross country data is now available that indicate that policies directed toward reducing economic inequality are likely to increase (not decrease) the rate of growth of real gross national product per capita in a developing country. (See, in particular, Rodrick (1995) and Perotti (1996).)

Some (but not all) of the reasons why this is so are alluded to in some of the results to be presented later in Chapters 5 and 6. In those chapters various classes of empirical evidence are presented that indicate that the reduction in the level of poverty contributes towards the improvement in the health status of children and in a reduction in the level of the total fertility rate. These changes, it seems reasonable to assert, would contribute towards increasing the rate of growth of real gross national product per capita in the Philippines. So, for example, an improvement in the health status of children will contribute towards a reduction in the physical stunting and a reduced mental capacity of members of the labour force. And these reduced capacities of individuals will reduce the level (if not also the rate of growth) of labour productivity in the community. (Relevant references that consider this issue are surveyed in Chapter 6.) As for the total fertility rate, Perotti (1996) provides empirical evidence to indicate that a reduction in the level of this variable increases the rate of growth of real gross national product per capita in developing countries. This empirical evidence is of some importance for the Philippines where the total fertility rate in 1995 stood at 3.7 - which is comparatively high relative to countries at a similar level of economic development. (The weighted average total fertility rate for lower middle income countries in 1995 was 3.0. (World Bank 1997)).

As for the third and fourth explanations, which overlap with the previous supposed explanations for the level of poverty in the Philippines, they suggest that since the poor do not have the resources, required skills and are often unorganised, they cannot fully participate in the conceptualisation, design and implementation of government policies and programs. This situation persists because of the existence of an elite[61] group in the society who own most of the land and capital, have the political connections and who exploit the resource which majority of the poor have in abundance - which is unskilled labour. Thus government programs aimed to reduce the inequitable distribution of resources - such as agrarian reform and the abolition of monopolies in coconut and sugar - have yet to make a positive impact on the poor in the Philippines.[62]

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61 For an in-depth study of the role of the socio-economic elite in Philippine politics and government, see Simbulan (1965).

62 Sobhan (1983: 62-4 and 68) points out that in the economic circumstances faced by farmers where there is a decline in agricultural yield given fixed and variable production costs, and where farmers continue to rely on rainfed agriculture or have no access to land (such as hired labourers), it is not surprising that agrarian reform has had a limited impact on the circumstances on beneficiaries of Operation Land Transfer. Among the major criticisms against the agrarian reform programs of the Philippine government are: (i) its narrow coverage (which prior to the Aquino administration has been confined to certain types of agricultural lands such as rice and corn); (ii) high cost of annual land amortisation relative to the annual income of rural households; (iii) the lack of support services such as credit, rural infrastructure, marketing and budgetary support (Rodriguez 1987); and (iv) slow implementation due to delays in arriving at land valuation and compensation policy (Sobhan 1983).

Saulo-Adriano (1991), on the other hand, analyses the bottlenecks and loopholes of Republic Act 6657 (the Comprehensive Agrarian Reform Law) that was approved during the Aquino Administration. These include limited coverage (arising from exemptions), the use of variable versus the single retention limit and award ceiling, and the existence of provisions favouring agri-business corporations. See also the views of the Congress for A People's Agrarian Reform (1992). For a historical background on agrarian reform and/or agrarian conditions in the Philippines, see for instance Sobhan (1983), Narciso (1988), Hayami et al. (1990), Saulo-Adriano (1991) and Kerkvliet (1997).

In the case of the oil palm industry, it remained highly monopolistic after deregulation policies during the Aquino administration because the oil mills under the defunct Unicom controlled 75 per cent of the processing of coconuts (Sajor 1993: 34) Also, yields from sugar and coconut have declined in the late 1980s as compared to the early 1980s because of the lack of support infrastructure such as irrigation and drainage (among others) and aging trees, respectively (Sajor 1993: 29). In addition, due to the excess

At this juncture, it is important to distinguish the root causes of poverty from the societal mechanisms that maintain it since these issues differ from one another (Abad and Eviota 1985). It may be surmised that there are preconditions for becoming poor such as insufficient income, non-ownership of land and capital and the lack of education and marketable skills. On the other hand, government intervention, in terms of policies and programs, or the lack of them, may perpetuate poverty. These preconditions and maintenance factors may be viewed as interlinked since current circumstances may have resulted from the failures in the government policies of previous and/or current political administrations. This point has a bearing within the context of a recent study by the Philippine Institute for Development Studies for the Presidential Commission to Fight Poverty (PCFP 1995) which listed six causes of poverty in the Philippines. These six causes can be classified into two categories. The first category lists the lack of employment and other opportunities to improve the livelihood of poor households, gross inequality in the distribution of wealth and access to resources, impediments to increased levels of productivity (such as low level of literacy and skills and the lack of complementary inputs to production), the abdication by the majority of the poor of their right to actively participate in the political process and having an inferior or degraded resource base. The second category is composed of factors such as the government's failure to provide alternative employment opportunities, adequate basic social services and a responsive service delivery system for the poor.

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supply of labour and because the workers are unorganised and often indebted to their patrons, the sugar and coconut workers have to contend with wage rates lower than the legislated minimum wages (Sajor 1993: 25).

It follows on from this last set of observations that a better understanding of the causes of poverty and how to address these concerns, require knowledge both of the existing circumstances that many of the poor are faced with *as well as* taking into account the form of government policies in the past and the present which may have influenced the extent of these existing circumstances. This perspective is taken into account in the empirical analysis of poverty in the Philippines in the 1980s and early 1990s. Before providing such an analysis, however, two comparable studies for other Asian countries are considered.

3.2 Recent studies on the causes of rural poverty

The recent studies of rural poverty in parts of Asia of interest are those conducted by Hossain and Sen (1992) and Gaiha (1988).

3.2.1 The Hossain and Sen study

Using cross-section data sets, Hossain and Sen analysed the determinants of household income and the level of poverty in rural Bangladesh in the 1980s. With household income as the dependent variable, the following independent variables were used in their model: land owned by a household; the proportion of cultivated land under tenancy and used to grow modern varieties of food grains; number of members in a household earning income; the proportion of female earning members and non-agricultural earners in a household; the household head with primary, secondary, and/or higher education; household receiving remittances and villages with access to electricity and/or good transport facilities. The econometric model was estimated,

using ordinary least squares, separately for farm and non-farm households as well as poor[63] and non-poor households. Finally, the regression model was estimated by using the whole data set based on information for all households.

Among the major findings of Hossain and Sen were:

• The size of the land owned by the household is the most significant determinant of rural income. Rural incomes are expected to increase by 26 per cent if the size of the land owned of an average household is doubled.

• The contribution of labour income to household incomes is relatively high. A doubling in the number of income/wage earners would increase incomes by 46 per cent. The effect, however, is less for poor households and more for workers engaged in non-agricultural activities. The contribution of female workers to household incomes was also found to be 60 per cent lower than that for an average male worker.

• Higher levels of education (that are beyond the secondary level) are an important factor in increasing rural incomes and the effect is greater for households engaged in non-farm activities. The effect of primary education on the household head is significant for poor (at a 10 per cent level of significance) but not for non-poor households. Secondary education, however, has the opposite effect.

• Household income for a village that has access to electricity is nearly 27 per cent higher than for a village with no electricity. In addition, households in a village with efficient transport facilities have an income

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63 Households were classified as poor if their average income was below the poverty line. The poverty line used by the authors was derived by getting the money value of the required per capita daily intake of 2,112 calories plus a 30 per cent allowance for non-food basic needs (Hossain and Sen 1992).

level that is 11 per cent higher than those in villages with access to a less developed transport network.

• Adoption of new agricultural technology, particularly the use of modern variety seeds, raises the incomes received by both poor and non-poor households; but the effect on poor households is greater. This could be explained by the observation that those who owned more land (the richer households) have difficulty in supervising labour in order to derive the maximum profit to be obtained from the new farm technology.[64]

• Finally, overseas remittances were found to be insignificantly related to household income.

3.2.2 The Gaiha study

The study by Gaiha concentrated on determining the factors that influence the risk of becoming poor in rural India. To determine these factors use was made of a logit model[65]. Gaiha categorised the households selected through a multistage stratified sampling method into poor (if the per capita income of the household falls below a given cut-off point[66]) or non-poor (if the per capita income exceeds the cut-off point). His logit aggregative regression results indicated that there were specific variables, after allowing for other factors, which were significantly correlated with the probability of a household falling below

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64 To achieve the optimum results from the use of high-yielding varieties of seeds for foodgrains requires the careful and precise application of water, fertilisers and the control of weeds. If this precision is not achieved, relevant crop yields can fall appreciably (relative to the optimum). See, for example, Lipton and Longhurst (1989) on this issue.

65 Under the logit model, the dependent and selected independent variables take the value of one (1) if a specified event occurs, and zero (0) if the specified event does not occur (Gaiha 1988: 221).

66 Two cut-off points were used by Gaiha. An upper bound which represents the minimum cost of a nutritionally adequate diet and a lower bound, which is assumed to be 80 per cent of the minimum cost (Gaiha 1988: 227).

the poverty line in rural India in the late 1960s. These factors included village-specific variables (particularly the existence of transport and medical facilities), technological variables (specifically the use of electricity for farming, high-yielding varieties of crops and agricultural extension programs) and the education variable (any household member with higher than primary education). The higher the level of these independent variables, the lower is the probability that a household will fall below the poverty threshold. On the other hand, the dependency burden, or the proportion of children (that is, household members who are less than or equal to 14 years old) to the total number of persons in the household, was found to be positively related to the risk of poverty. The risk of falling under the poverty line, however, was found to vary across occupational groups - other things being held the same.

For a range of reasons the results provided by both studies are of interest for other developing economies. They indicate how poverty alleviation policies in other developing countries may be more effectively designed. These results also indicate how to go about the task of determining what factors may determine the level of poverty in another developing country - such as the Philippines. This matter is turned to next.

3.2.3 Applicability of the studies to the Philippines

The studies that have just been cited provide useful insights as to how a similar study may be constructed to allow an analysis of poverty in the Philippines. Nevertheless, there are particular circumstances and issues that apply in the Philippines that need to be allowed for. To begin the discussion of this matter first it is noted that in the Philippines land

ownership - a significant variable in determining rural incomes in the Hossain-Sen study - remains highly skewed. While land reform may for the time being help in redistributing wealth and removing the worst examples of rural poverty, it is not a necessary nor a sufficient condition for the elimination of poverty. To begin with, land reform needs to be combined with increased access to credit, improved agricultural technology and supporting extension services. In addition, ideally land reform needs to be combined with an effective industrial policy that provides alternative employment opportunities for the rural labour force. This alternative source of income for rural households will allow them to reduce the variance of income streams.

What is more, the introduction of new agricultural technology would need to be combined with support facilities that reduce the costs of access to markets for inputs and outputs. If not, then any new technology introduced into rural Philippines is likely to bring only limited increases in the incomes of poor households. For instance, the provision of electrical power and improved transport facilities were both cited in both the Hossain and Sen, and Gaiha studies as factors increasing the income level of a poor rural household. Areas with electricity would benefit from the infusion of new agricultural technology such as, for instance, the effort and time saved by making use of electric-powered threshers and water pumps. Good transport facilities, on the other hand, are essential for lowering the costs of transporting inputs (particularly fertiliser and pesticides) and outputs between the farm and various markets. (The inputs of fertiliser and pesticides are essentially for allowing the effective exploitation of the new seed technology.)

As for access to medical facilities such as health centres, it probably is important for raising the health status of poor rural (and non-rural) households. And a healthy rural population is one factor which will tend to increase the capability of these households to exploit, effectively, the economic opportunities open to them. A similar remark can be made about the provision of higher levels of education. Yet, in the Philippines rural educational levels are lower than those found in urban areas. The latest education census shows that of the urban population aged 15 years and over 42 per cent have reached, or have graduated from high school. In the rural areas, however, only 46 per cent of the residents aged 15 years and over have attained the lower level of education of elementary education (DECS and NSO 1996).

Foreign remittances were found to be insignificant in raising rural incomes in the Hossain and Sen study. However, these may be a significant factor, especially between 1985 and 1995, for augmenting household incomes in the Philippines. Foreign exchange remittances by overseas contract workers were US$3.98 billion in 1995, which is more than a 400 per cent increase over the level of remittances (a figure of US$687.20 million) in 1985 (NSO 1994c and 1995). (The primary market for Philippine labour is the Middle East (particularly Saudi Arabia, Kuwait, and the United Arab Emirates) followed by Asian countries (such as Hong Kong, Taiwan, and Singapore) (NSO 1994c and 1995).)

On the dependency burden (which Gaiha found was positively related to the risk of becoming poor), it is possible that this also applies to the situation to be found in the Philippines - a community which has a relatively high dependency burden ratio. Based on the latest census data (NSO 1993), the dependency burden ratio in the Philippines was

75.5 - which means that for every ten income earners, there are about eight others who rely on the working family members for their subsistence. This fact means that household members who are earning have to spread the incomes they receive amongst a relatively large number of dependents. However, a negative causation may not just go from the dependency ratio to the level of per capita real income. Low per capita real incomes (or poverty) may also induce couples to acquire more children and, thereby, raise the dependency burden ratio.[67] There is, in other words, a simultaneous equation problem here.

These initial observations suggest that various factors may explain the variations in the level of household incomes and the level of the incidence of poverty across the regions and provinces in the Philippines. This matter has been considered in several studies of the differences in the level of the incidence in the level of poverty and the level of real average family incomes across the fourteen (14) regions of the Philippines (for example, Quisumbing and Cruz 1986; Bronger 1991; and Lamberte et al. 1993). The problem with these studies, however, is that they are all based on comparatively small data sets. It is possible, however, to expand the relevant data sets by gathering data for the seventy-six provinces of the country. This is what is done here.

As far as I am aware, this is the first time these data sets have been used for this purpose. This may be due to the lack of data on the incidence of poverty by province prior to 1991. Nevertheless, the sole

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67 One reason why this may be so is that poor households need more hands to provide services such as fetching firewood and water for the household. In addition, since there is no social security system, parents may acquire children so that they will (they hope) assist their parents in their old age.

use of regional data, instead of provincial data, means that useful information may be lost.

3.3 The Philippine minimum basic needs index[68]

Before turning to the matter of attempting to explain variations in the level of the incidence of poverty and household incomes across the provinces in the Philippines, it is useful to note, briefly, that these variables might not be the only ones whose variation may need to be explained. The other variable that may also be considered is the minimum basic needs (MBN) index by province. A measure of this index was published in 1995 by the Philippine Government.

This index contains eight variables by province; namely, (a) the number of families below the official poverty line; (b) the incidence of official poverty in the province; (c) the infant mortality rate; (d) the malnutrition rate; (e) the percentage of age cohort completing grade 4; (f) the adult illiteracy rate; (g) the proportion of households without access to safe water; and (h) the proportion of households without access to sanitary toilets. The first two indicators refer to income; the third and fourth to health status; the fifth and sixth pertain to education and literacy; and the last two to public health facilities. It follows that this index, if deemed as being generally acceptable, may be taken to measure the level of well-being by province.

The method used to construct the MBN index is similar to that used by the United Nations Development Program in deriving a human

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68 The description of the index in the main text draws on PCFP (1995).

development index. Each variable, k, for each province, p, is given an 'index of achievement', or I^p_k, which measures how the province compares with other provinces, as shown below (PCFP 1995: 22):

$$I^p_k = \frac{\max x_k - x^p_k}{\max x_k - \min x_k},$$

where:

x^p_k denotes the value of the variable k in province p,

$\max x_k$ is the highest value for variable k

and $\min x_k$ denotes the minimum value for variable k.

Given the above formula, I^p_k takes a value of zero (0) if its value is the highest among all the provinces, and one (1) if the lowest. For each province when the I^p_ks for eight variables are summed up across all k variables, the following identity is employed:

$$I^p = \sum_{k=1}^{n} I^p_k .$$

Each I^p, or aggregate index for each province, is then compared and ranked across provinces. As the aggregate index for a province tends to zero, the worse off the province has become in terms of well-being, as defined.

While the use of this method has the property that it allows us to rank provinces by using more than one indicator (PCFP 1995: 22), there are problems, however, with using such a composite index. Firstly, there is the matter of how each component in the aggregate index should be

weighted. Specifically, each of the eight variables is given an arbitrary weighting; the weighting system is never explained. It is difficult, however, to reach a consensus on what weight to give each variable. Secondly, there is the matter of the selection of variables to be used in the index. The issue of what are the best indicators to use is, however, problematic.

These brief remarks - which are discussed in more detail in Dasgupta and Weale (1992), Qizilbash (1996) and Noorbaksh (1998) - suggest that the 'index of achievement' may give a misleading indication of why the level of poverty varies across the provinces in the Philippines. For these reasons, a different approach is employed here. (The matter of the methodology of the United Nations human development index is also discussed at various points in Chapter 4.)

3.4 The Data Set

Prior to discussing the regression models, a brief description of the data set used in this chapter is presented in this section. Table 1 presents a summary of the data used in these models. A definition of the variables is contained in the appendix (see Annex 5).

Correlation between the independent variables may be detected using the correlation matrix (see Table 2 in Annex 6). For example, ELEC was found highly correlated with POT, SAN, NAGL, DEPR, URB, FLIT and ACADEG; NAGL with URB and ACADEG; and LANFO with ILLIT. (For instance, the variables electricity and sanitary toilet facilities are highly correlated - the unadjusted correlation coefficient between these two variables is 0.740. See Table 2 in Annex 6.) This information

indicates that multicollinearity may be present when attempting to estimate the regression equations (3.1, 3.2 and 3.3) to be discussed in the following sections of the chapter. Hence, it is not possible to measure the separate influences of the correlated variables on the level of the incidence of poverty, or real average family income, or real per capita income in the province concerned. Thus, a two-stage estimation procedure was employed as a way of circumventing this problem to some degree. This procedure will be discussed in the next section.

Table 1. Summary Statistics

Variable	Mean	Standard deviation	Minimum	Maximum
POVI	48.481	14.410	4.900	74.900
LogRAFI	10.320	0.309	9.760	11.059
LogRPCI	8.769	0.313	8.157	9.567
ELEC	42.842	20.620	9.400	90.900
POT	58.484	17.935	13.500	90.300
SAN	50.258	19.798	8.700	93.300
NAGL	43.714	14.017	12.000	77.300
DEPR	80.422	6.739	66.700	94.700
HSIZ	5.349	0.227	4.800	6.100
URB	35.190	17.612	9.000	95.200
LANFO	0.478	0.127	0.216	0.831
IRRIG	0.483	0.268	0.020	1.000
DIST	0.904	0.836	0	2
FLIT	71.529	10.933	36.300	90.800
ILLIT	8.679	7.109	1.400	40.200
ACADEG	10.099	3.194	3.100	20.800
ROADEN	1.464	0.683	0.525	4.941
PAVRODEN	0.194	0.147	0.021	0.640
D	6.836	3.659	1.000	13.000

3.5. Regression models

To determine which factors account for the variation in the incidence of poverty, real average family incomes, and real per capita incomes across the provinces of the Philippines, the statistical models shown below using household and/or provincial conditions as explanatory variables were considered. Note that these models are modified versions of those adopted by Hossain and Sen, and Gaiha.

3.5.1 On the incidence of poverty

3.5.1.1 The model

The general form of the equation is:

$$Povi_{jik} = b_o + b'_{ji}\, x_{jik} + \mu_{jik'} \qquad (3.1)$$

where k denotes the cluster of data observations from a particular region. The term x_{jik} denotes a vector of independent and exogenous variables for variable j, for province i which is in the region k. The term μ_{jik} denotes an error term whose value is assumed to be dependent upon which cluster of data is used to estimate the relevant form of the regression equation. The vector of coefficients, b_j, and the constant term, b_o, are estimated using the Huber-White cluster method. This estimation method is employed to mitigate the possible presence of (a) the cluster problem - which is likely to arise if the data collected from within a particular region is correlated[69] - and (b) heteroscedasticity[70].

The dependent variable in equation 3.1 is $POVI_i$, which is defined as the proportion of the population in province i whose annual per capita income falls below the annual per capita poverty line, or threshold for this province. The poverty threshold, in turn, is defined as the annual per capita income required, or the amount to be spent to satisfy nutritional requirements of 2,000 calories per day and other basic needs (NSCB

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69 For a discussion of the cluster problem see Deaton (1995: 1817-9 and 1997: 74 - 8). The cluster problem causes the standard errors (or t-statistics) to be biased.

70 Heteroscedasticity causes the standard errors to be incorrect and the ordinary least square method of estimation to be inefficient. See White (1980) and Deaton (1997: 78-80) on how the difficulties raised by the presence of heteroscedasticity may be overcome.

1994: 2-22 fn 1). The previous discussion indicates a range of variables to explain the variation in the incidence of poverty across provinces. However, a major constraint on the choice of variables to employ in the analysis is the availability of data for specific variables for the same year (cross-section data) or for several years (time-series data). Variables such as the unemployment rate, source of credit, quality of transport facilities, access to medical facilities, and foreign exchange remittances were not included in the model since data were not available at the provincial level. Another variable that may be of interest, but not included in the regression model, is the extent of the adoption of the new agricultural technology in the various provinces. It may be that some provinces are in a better position to adopt high-yielding varieties. However, data on rice technology adoption at the provincial level were not available. Seventy-three out of seventy-five (75) provinces were covered in the study. (Data for two new provinces (that is Guimaras and Biliran) were not available in 1991.)

Potable water, sanitary toilet facilities, and electricity are considered to be basic needs. Potable water[71] (POT) and sanitary toilet facilities (SAN) are essential for raising the level of health status in the community. Members of a household with adequate potable water and sanitary toilet facilities are more likely to be healthier than persons living in households without these basic facilities. If men and women are physically stronger and healthier, then clearly they are better able to generate more income. Electricity (ELEC), which is normally associated with modernisation, allows households to save on time and effort on

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71 A potable source of water supply refers to water suitable for drinking from community water systems and tubed/piped deep well (NSO 1993: 2).

household chores. Thus the members of the household have more time to engage in productive, or gainful, work. It also facilitates the establishment of small industry in rural areas. Hence, it is expected that the higher the proportion of households with electricity, potable water and sanitary toilet facilities, the lower is the incidence of poverty in the province.

While the Philippines is still basically agricultural, the labour force in the agricultural sector has been declining. Between 1987 and 1996, employment in this sector declined from 47.8 per cent to 41.7 per cent (NSCB 1997: 11-6). One of the possible reasons for the reduction in agricultural labour is the lower wages received by agricultural workers relative to non-agricultural workers. Non-agricultural workers also have been observed to be better educated and have better access to health facilities. Hence, the variable NAGL is expected to have a negative relationship with $POVI_i$.

As for the dependency burden (DEPR), it is obvious that the more non-earning members there are in the household relative to those who are working, the fewer resources there are available to meet the basic needs for each member of the household - basic needs such as food, clothing and shelter. Thus the higher the dependency burden (DEPR) ratio, the higher is the expected incidence of poverty in the province. As indicated earlier, however, it is possible that there may be a simultaneous equation bias problem because $POVI_i$ and DEPR may influence each other. Hence the co-efficient estimate for DEPR may tend to be overstated, or biased upward.[72]

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72 Suitable instrumental variables may be employed in the attempt to handle this problem. Because of other estimation problems, however - such as the presence of the cluster problem - this estimation technique is not employed here.

As for the influence of average household size (HSIZ) on $POVI_i$, the more (fewer) household members there are, the higher (lower) is the probability that the household will fall below the poverty threshold because there will be more (fewer) mouths to feed, clothe and shelter. The likelihood that this will occur will depend, however, on the number of non-earning members in the household.

Turning to consider the proportion of households living in an urbanised[73] area (URB), it is not clear what influence this variable has on the incidence of the level of poverty. While urbanisation is associated with modernisation (which, in turn, means better infrastructure - for example, roads, bridges and school buildings), this variable may also be associated with higher levels of unemployment in urban areas.

Ownership of land[74] is essential not only as a resource for generating income and ensuring a place to live, but also as a valuable asset to be sold in case of dire circumstances (for example, sickness in the family, or heavy indebtedness). Thus the proportion of owners fully owning and operating the area of arable land in the province (LANFO) is hypothesised to have a negative influence on the level of $POVI_i$ - other things being the same. In this regard it is also noted that while there are landless labourers in the Philippines, census figures show that about 15

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73 A municipality and a city is classified as urbanised when it has a population density of at least 1,000 persons per square kilometre (NSO 1994b: 374). *Poblaciones* or central districts of municipalities and cities as well as in barangays (villages) are classified based on a set of guidelines (NSO 1994b: 374).

74 Full ownership of land is defined as 'land operated with a title of ownership in the name of the holder and consequently, the right to determine the nature and extent of the use of the land' (NSO 1994a: x).

per cent of the total area of farms was tenanted, or leased in 1991 (NSO 1994a: xxxiv).

Another variable which may influence the level of $POVI_i$ is the quality of land in a province. The quality of land would be reflected in the price of land. However, this variable was not included in the model since data on the price of an average piece of agricultural land by province were not available.

Irrigation, together with high yielding varieties and other support services to farming, aims to raise agricultural yield. This is done by way of enabling farmers to harvest their produce more than once a year. Thus, the proportion of irrigation facilities to arable land (IRRIG) is expected to have a negative influence on the level of $POVI_i$ - holding other things the same.

Most of the essential public services and infrastructure have long been concentrated in MetroManila and its surrounding provinces. Hence distance (DIST) may be an important variable in explaining variations in the incidence of poverty across provinces. This is particularly so since the road network in the Philippines is poor and communication facilities are inadequate (see World Bank 1996). As it is difficult to get estimated distances between the capital centre of a province and MetroManila, especially for the island provinces, dummy variables were used instead. All provinces which are officially classified as part of the Luzon island were given a value of zero (0). Exceptions were made for Mindoro and Palawan, two island provinces of Luzon which are relatively further away from MetroManila (compared with the other provinces within the Luzon island). Mindoro and Palawan were

treated similarly to provinces in the Visayas, and were given a value of one (1). Provinces in Mindanao, on the other hand, that are even further away from Metropolitan Manila, were given a value of two (2). All things being equal, it is hypothesised that a province outside of Luzon has a higher incidence of poverty than one within the Luzon island.

Functional literacy (FLIT), or the ability to read, write and count (DECS and NSO 1996: xxiv) may help improve a person's socio-economic condition. A person who is functionally literate, on the average, has a greater chance of receiving higher wages than the less functionally literate. A functionally literate person is also expected to be more exposed to information on improvements in science and technology and apply this to her/his daily life. Thus it is hypothesised that the higher (resp. lower) the functional literacy rate or FLIT for a province, the lower (resp. higher) is $POVI_i$ - other things being the same. Put differently, the higher (resp. lower) the illiteracy rate (or ILLIT) for a province, the higher (resp. lower) is $POVI_i$ - also other things being the same.

Another education variable used is ACADEG, or the proportion of those aged 25 years and over who have an academic degree. This variable, however, may be considered as an imperfect measure of the level of educational attainment in the province because it only covers a portion of the population, specifically those who are 25 years old and above. However, ACADEG gives us an idea of the level of educational attainment of a substantial portion of the labour force (with ages 15 years and above). Similar to FLIT, it is hypothesised that the higher ACADEG is, the lower is $POVI_i$ - holding other things the same. Alternative education variables which may be used in the model are gross

enrolment rates and completion rates in the elementary and secondary school levels. School enrolment and completion rates, however, are also an imperfect measure of the level of educational attainment in a province since they cover a certain slice of the population only, particularly household members who are approximately between the ages of six and sixteen (16) years of age.

Roads are important in the rural areas primarily for transporting agricultural produce to the town or city market. Also, roads enable people to make use of facilities found in the town or city centres such as higher education and credit, which, in turn, allows them to improve their incomes. The better the quality of the roads, the easier it would be for farmers to raise their incomes. Thus, road density (ROADEN) and paved road density (PAVRODEN) are expected to have a negative influence on $POVI_j$.

To take into account the cluster problem mentioned earlier, the data by province were clustered into the thirteen (13) regions (exclusive of the National Capital Region) of the country. Delineation by region (D) included the Cordillera Administrative Region, but excluded the Autonomous Region of Muslim Mindanao and the CARAGA region since the provinces within these two regions were still officially classified, in 1991, as part of Regions 9 and 12, and 10 and 11 respectively.

As mentioned earlier, some of the independent variables are correlated with each other. When run together, the variables which are highly correlated may result in biased coefficients. The method most frequently used to remedy this situation is to drop the variables expected to cause the multicollinearity problem (Greene 1997: 423). This may,

however, result in problems of mis-specification of the basic regression model (Greene 1997: 423). What is more, or of more importance, some valuable information may be lost, which otherwise would provide useful insights into how certain (independent variables) may influence the level of poverty in the Philippines. In the attempt to avoid this problem, and instead of dropping variables, a two-stage least squares (2SLS) estimation procedure was employed.

To explain this estimation procedure in general terms, first it is specified that there is a dependent variable, Y_i, that is to be regressed on a set of relevant independent variables - the x_i's. This equation is estimated using ordinary least squares based on the Huber-White cluster estimation method. The estimated regression is then used to provide predicted values of Y_i. These predicted values of Y_i are then used as an instrumental variable in the second stage in the estimation process. Specifically, this second stage consists of specifying a dependent variable, y_i, that is to be regressed on a set of relevant independent variables - the X_i's. However, in the estimation of this second regression equation, one of the independent variables is combined with the instrumental variable - the predicted values of Y_i. Besides that, this second equation is also estimated using ordinary least squares based on the Huber-White cluster estimation method (Deaton 1997: 78 - 80 and Greene 1997: 741).

When it comes to the regression equations 3.1, 3.2 and 3.3, NAGL was used as Y_j in the first equation. The predicted value of Y_j was then used as the instrumental variable in the estimation of the second equation. More specifically, in the first regression equation, NAGL was regressed on a range of independent variables (such as ELEC, URB and

ILLIT). The Huber-White Cluster Method, discussed earlier, was used in this estimation of the regression equation. Next, the predicted value of NAGL was used as an instrumental variable, together with other independent variables, in a regression equation with $POVI_j$ as the dependent variable.

3.5.1.2 Regression results and analysis

After some experimentation with a range of relevant variables,[75] the regression equations which gave the most robust, stable and insightful results are those set out in Table 3. The regression equations as a whole were found significant based on the F-tests[76]. The coefficient of determination[77] (denoted as R^2) ranged between 0.26 and 0.29 for the $POVI_j$ model and 0.56 to 0.58 for the first-stage equation (with NAGL as the dependent variable). Except for the coefficient of one variable (PAVRODEN), all the coefficient estimates set out in that table are statistically significant at just above the five per cent level, or less. In addition, all coefficient estimates have the signs which intuition suggests they should have. This last assertion is explained by way of considering, in turn, each variable that is referred to in Table 3.

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75 Other explanatory variables included in various regression equations - equations that are not reported in the main text - were: potable water, dependency burden, household size, irrigation, distance, functional literacy and road density. The relevant coefficient estimates for these variables were found not to be statistically significantly different from zero. Some of these variables are considered, briefly, later in the main text.

76 The F statistic is used to test the hypothesis that all the individual coefficients of the regression equation except the constant term are significantly different from zero (Greene 1997: 268).

77 The coefficient of determination measures the proportion of the total variation in the dependent variable that is accounted for by the variation in the regressors or in the independent variables (Greene 1997: 252).

Table 3. Coefficient Estimates derived using the Huber-White cluster regression formula*: POVI model

	Number of the regression equation					
	1	2	3	4	5	6
Dependent Variable	POVI	NAGL	POVI	NAGL	POVI	NAGL
Estimation method	2SLS	OLS	2SLS	OLS	2SLS	OLS
constant	109.768 (7.78)	31.040 (6.17)	111.91 (8.74)	24.804 (4.467)	113.51 (11.03)	32.78 (7.88)
SAN	- 0.300 (-2.59)		-0.287 (-2.72)		-0.278 (-2.41)	
LANFO	-52.976 (-3.65)		-54.169 (-3.71)		-55.060 (-4.18)	
NAGL	-0.477 (-2.15)		-0.528 (-3.40)		-0.566 (-3.61)	
ELEC		0.196 (2.18)				
URB		0.255 (3.02)		0 .290 (3.27)		0.346 (7.19)
ILLIT		-0.541 (-2.92)		-0.527 (-2.58)		-0.588 (-4.20)
ACADEG				1.315 (2.11)		
PAVRODEN						19.884 (1.97)
R^2	0.288	0.563	0.274	0.583	0.261	0.560
F Statistic	8.01	71.32	9.92	89.10	14.04	58.37
no. of observations	73	73	73	73	73	73

* All variables in brackets refer to the t-statistics corrected for heteroscedasticity using the Huber-White method. See the appendix (Annex 5) for the definition of the variables and sources of data.

Columns 1, 3 and 5 show that SAN, LANFO and NAGL were found significantly related to $POVI_i$ based on their t-statistics[78]. Using a 2SLS method as described earlier, other independent variables were, in turn, found significantly related to NAGL (see columns 2, 4 and 6). In

[78] The t-statistic is used to test the hypothesis that the regression coefficient β_k is significantly different from zero (Greene 1997: 265).

column 2, for instance, ELEC, URB and ILLIT were found significantly related to NAGL. Apart from URB and ILLIT, ACADEG and PAVRODEN were found to be significantly related to NAGL as shown in columns 4 and 6, respectively. The results in Table 3 imply, therefore, that these other independent variables, that are statistically significant in influencing the level of NAGL, also at least *indirectly* influence the size of $POVI_i$ (that is, the level of poverty across provinces in the Philippines).

In passing, it is emphasised that because of the multicollinearity problem the independent variables, URB, ILLIT, ACADEG and PAVRODEN, were dropped from a single-equation model, with $POVI_i$ being set as the dependent variable. Thus, had a two-stage estimation procedure *not* been used, then a useful insight would have been lost; namely, and as has just been noted, these independent variables seem to have influenced, at least indirectly, the level of poverty across the provinces in the Philippines in the early 1990s. (This is not to say that we know the exact quantitative size of the *full* extent of the influence of these independent variables. This we cannot know, by drawing on relevant regression results, because of the multicollinearity problem. All we can say is that these variables at least have a statistically significant indirect effect on the level of poverty in the Philippines.)

Analogous to the Hossain and Sen study, LANFO and NAGL were observed to have a negative effect on the incidence of poverty. The results of the relevant regressions equations in Table 3 may be interpreted as follows. Owning land will tend to reduce the economic uncertainty that faces a rural household - economic uncertainty reflected in the variability of income streams. This reduced economic uncertainty, along with the fact that land can be used as collateral to underwrite

loans, means that those households that own relatively large amounts of land will find it relatively easy (compared to households that own little or no land) to acquire credit. And this credit will assist in generating extra income for these households (that own relatively large amounts of land). In addition, the ownership of adequate amounts of land by a household will ensure that it has access to adequate amounts of food.

Turning to the issue of non-agricultural income earners, as pointed out in sub-section 3.5.1, this group receives comparatively higher wages and less volatile incomes than agricultural workers. The proportion of non-agricultural earners in the province may, in turn, be influenced by access to electricity, the level of urbanisation, the level of educational attainment of its labour force, and the availability of infrastructure facilities, such as roads. Electricity allows people in the rural areas to engage in alternative sources of income outside of agriculture. An increased level of urbanisation is associated with more employment opportunities in the manufacturing and service sectors. Having a basic level of literacy and an academic degree (for certain occupations) are also usually required for non-agricultural types of work. Paved roads facilitate also the creation and expansion of urban centres, which, in turn, provide opportunities for non-agricultural employment.

As for the negative effect of SAN on POVI, this indicates that the higher the proportion of households with access to sanitation facilities the lower the level of the incidence of poverty in the province concerned. It is possible that having access to sanitation facilities has a positive effect on the level of health status of rural households. Being healthy, in turn, allows more members of the household to earn more income.

3.5.2 On variations in income

3.5.2.1 The regression models

In the present instance the following regression models are hypothesised:

$$LogRafi_{jik} = b_o + b'_j x_{jik} + \mu_{jik'} \quad (3.2)$$

$$LogRpci_{jik} = b_o + b'_j x_{jik} + \mu_{jik'} \quad (3.3)$$

where again k denotes the cluster of data observations from a particular region. The term x_{jik} denotes a vector of independent and exogenous variables for variable j, for province i which is in the region k. The term μ_{jik} denotes an error term whose value is assumed to be dependent on which cluster of data is used to estimate the relevant form of the regression equation. The vector of coefficients, b_j, and the constant term, b_o, are estimated using, as before, the Huber-White cluster method. (The reasons why this estimation method was employed were indicated earlier just below equation 3.1.)

The dependent variables used in regression models set out in equations 3.2 and 3.3 were real average family income per province ($RAFI_i$) and real per capita income per province ($RPCI_i$) respectively. $RAFI_i$ was derived by dividing the estimated total real family income (in thousands of pesos) by the estimated total number of families per province. A family is defined as: '(a) a group of persons usually living together [in a household] and composed of the head and other persons related to the head [of the household] by blood, marriage or adoption; or (b) a single person living alone' (NSO 1994b: 367). $RPCI_i$, on the other hand, was calculated by dividing the estimated total real income for a province (also in thousands of pesos) by the estimated total population in the province. To convert nominal incomes to real incomes, regional

price indices were used. Similar to the Hossain and Sen study, the logarithmic form for real average family income per province ($logRAFI_i$) and real per capita income per province ($logRPCI_i$) were used in the models. Similar to the $POVI_i$ model set out in equation 3.1, a range of variables may explain the variation in the level of real average family income and real per capita income per province. However, the above models were limited to explanatory variables where data for relevant variables were available for 1990 and 1991 - the year for which income data were available.

The definitions of all the explanatory variables are similar to those in equation 3.1 - the $POVI_i$ model. However, for obvious reasons, the signs attached to the relevant regression coefficients are expected to be the opposite to those set out in Table 3. For example, while ELEC was expected to have a negative influence on the level of $POVI_i$ (where this variable is the dependent variable), the same independent variable is hypothesised to have a positive influence on the level of $logRAFI_i$ and $logRPCI_i$.

That said, in the non-agricultural sector (NAGL) all the variables, electricity (ELEC), potable water (POT), sanitary toilet facilities (SAN), land (LANFO), irrigation (IRRIG), road density (ROADEN), paved road density (PAVRODEN), as well as functionally literacy, (FLIT) and having an academic degree (ACADEG) are all expected to increase real family income for households and real per capita income within the Luzon Island (D_O). The dependency burden (DEPR) and illiteracy (ILLIT), on the other hand, are expected to decrease $logRAFI_i$ and $logRPCI_i$. As for the influence of URB and HSIZ on $logRAFI_i$ and $logRPCI_i$, they may go in both directions. The two stage least squares estimation procedure, as

described in section 3.5.1.1, also was used in the estimation of relevant regression equations.

Finally it is noted that since the incidence of poverty depends on income levels, it seems reasonable to suppose that the higher the level of POVI, the lower should be the level of $logRAFI_i$ and $logRPCI_i$. This relationship is not certain, however. If the distribution of total income in the community becomes more skewed against poor households, then a rise in the level of the headcount measure of poverty may be associated with the level of $logRAFI_i$ or $logRPCI_i$ remaining unchanged - or even rising if there is some economic growth in the economy and/or, in the case of $logRPCI_i$, a decline in the rate of growth of population.

3.5.2.2 Regression results and analysis

After some experimentation with a range of relevant variables,[79] the regression equations which gave the most robust, stable and insightful results are those set out in Tables 4 and 5. The regression equations as a whole were found significant based on the F-tests[80]. The coefficient of determination (denoted as R^2) which ranged between 0.53 and 0.55 for both the $logRAFI_i$ model and the $logRPCI_i$ model were higher than the R^2s for the $POVI_i$ model. With one exception (PAVRODEN), all the coefficient estimates set out in these tables are statistically significant at just above the 5 per cent level, or less. In

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79 Other variables included in the various regression equations - equations that are not reported in the main text - were: potable water, dependency burden, household size, functional literacy and road density. The relevant coefficient estimates for these variables were found not to be statistically significantly different from zero. Some of these variables are considered, briefly, later in the main text.

80 See footnote 17 for a brief discussion of an F statistic.

addition, all coefficient estimates have the signs which intuition suggests they should have. This last assertion is explained by way of considering, in turn, each variable that is referred to in Tables 4 and 5.

Columns 1, 3 and 5 in Tables 4 and 5 indicate that similar to the previous results for the $POVI_i$ regression model, SAN, LANFO and NAGL were found significantly related to $logRAFI_i$ and $logRPCI_i$. However, there were two other independent variables that were found significantly related to real income per province but which were not found significantly related to $POVI_i$; namely, IRRIG and DIST. As hypothesised, IRRIG was found positively related to $logRAFI_i$ and $logRPCI_i$, while the influence of DIST on real income was as expected. Thus the relationship between DIST and real income (whether based on mean family income or per capita) means that if the province is located in Luzon, the real average family income for a household residing in the province, or the real per capita income for the province, tends to be higher compared to that (for either of these income measures) for a province located outside of Luzon Island - assuming that all others are equal.

Surprisingly, POT was not found to be significantly related to $logRAFI_i$ or $logRPCI_i$. This may mean that, after allowing for other factors, increasing the level of access of households to potable water in a province does not necessarily mean a higher level of average household income or per capita income. This is not completely surprising. Suppose the authorities expend funds on increasing the availability of potable water. This change may take place quite independently of any (or no) alteration in the level of average household income.

Table 4. Coefficient Estimates derived using the Huber-White cluster regression formula*:logRAFI model

	Number of the regression equation					
	1	2	3	4	5	6
Dependent Variable	LogRAFI	NAGL	LogRAFI	NAGL	LogRAFI	NAGL
Estimation method	2SLS	OLS	2SLS	OLS	2SLS	OLS
constant	8.862 (32.44)	31.040 (6.17)	8.926 (30.93)	24.804 (4.467)	8.857 (31.39)	32.78 (7.88)
SAN	0.007 (3.44)		0.008 (4.20)		0.007 (3.60)	
LANFO	1.104 (4.93)		1.081 (4.78)		1.106 (4.77)	
DIST	-0.067 (-2.43)		-0.072 (-2.56)		-0.066 (-2.52)	
IRRIG	0.273 (2.51)		0.270 (2.48)		0.273 (2.53)	
NAGL	0.011 (3.14)		0.010 (2.79)		0.011 (3.17)	
ELEC		0.196 (2.18)				
URB		0.255 (3.02)		0.290 (3.27)		0.346 (7.19)
ILLIT		-0.541 (-2.92)		-0.527 (-2.58)		-0.588 (-4.20)
ACADEG				1.315 (2.11)		
PAVRODEN						19.884 (1.97)
R^2	0.533	0.563	0.551	0.583	0.532	0.560
F Statistic	34.79	71.32	37.88	89.10	37.67	58.37
no. of observations	72	73	72	73	72	73

*All variables in brackets refer to the t-statistics corrected for heteroscedasticity using the Huber-White method. See the appendix (Annex 5) for a definition of the variables and sources of data.

Table 5. Coefficient Estimates derived using the Huber-White cluster regression formula*: logRPCI model

	Number of the regression equation					
	1	2	3	4	5	6
Dependent Variable	logRPCI	NAGL	logRPCI	NAGL	logRPCI	NAGL
Estimation method	2SLS	OLS	2SLS	OLS	2SLS	OLS
constant	7.466 (28.24)	31.040 (6.17)	7.559 (27.75)	24.804 (4.467)	7.484 (31.63)	32.78 (7.88)
SAN	0.006 (2.71)		0.006 (3.22)		0.006 (2.63)	
LANFO	0.829 (3.73)		0.801 (3.69)		0.824 (3.89)	
DIST	-0.068 (-2.10)		-0.077 (-2.14)		-0.070 (-2.28)	
IRRIG	0.0275 (2.99)		0.268 (2.81)		0.274 (2.97)	
NAGL	0.012 (3.54)		0.010 (2.93)		0.012 (3.26)	
ELEC		0.196 (2.18)				
URB		0.255 (3.02)		0.290 (3.27)		0.346 (7.19)
ILLIT		-0.541 (-2.92)		-0.527 (-2.58)		-0.588 (-4.20)
ACADEG				1.315 (2.11)		
PAVRODEN						19.884 (1.97)
R^2	0.527	0.563	0.548	0.583	0.532	0.560
F Statistic	35.01	71.32	36.41	89.10	35.18	58.37
no. of observations	72	73	72	73	72	73

* All variables in brackets refer to the t-statistics corrected for heteroscedasticity using the Huber-White method. See Annex 5 for a definition of the variables and data sources.

Turning to the regression results using NAGL as the dependent variable, variables such as ELEC, URB, ILLIT, ACADEG and PAVRODEN were found, in turn, to be significantly related to NAGL (see Columns 2, 4 and 6 in Tables 4 and 5). These results are identical to those contained in the even-numbered columns of Table 3. The predicted values of NAGL were then used as instrumental variables in the estimates of the regression equations in which $logRAFI_i$ or $logRPCI_i$ were dependent variables. (The results for these regression equations were discussed earlier.)

3.6 Conclusions

In conclusion, first it is emphasised that the results presented here need to be treated with some caution since the data used in the estimates of various regression equations are not ideal. However, if these results can be tested using improved data sets, and these results turn out to be robust, then they have implications for the design of poverty-alleviation programs in the rural areas of the Philippines.

It is also pointed out that it may not be inappropriate to compare the above results with those to be found in the studies by Hossain and Sen (nor that by Gaiha). This is due to the non-congruency of the models used (that is, some variables are missing in both models), as well as the different estimation techniques employed in these various studies. Nevertheless, there are some similarities between the Hossain-Sen study and the findings presented in the previous sections. For instance, in both studies the following list of variables was found to have a statistically significant influence on the level of poverty and real average household incomes: LANFO, NAGL, ELEC and some

appropriate measure of the level of education. This implies that increasing the proportion of households who: own the land that they till; are working outside of agriculture; have access to electricity and receive a relatively large amount of basic education will raise the level of average real incomes for these households. What is more, the higher the level of average household incomes or per capita incomes in a province, the lower is the incidence of poverty in this province.

The regression results presented in Tables 3, 4 and 5 also strongly suggest that a reasonably sure way of reducing the level of poverty, and raising real incomes per capita at the provincial level in the Philippines is to improve the supply of a range of basic infrastructure. And this basic range of infrastructure refers to: (i) basic education directed at reducing functional illiteracy; (ii) electricity; (iii) irrigation; (iv) paved roads and (v) basic preventive health care, as represented by the provision of sanitation. This theme, of the provision of an improved supply of infrastructure in the Philippines, is one that is developed in parts of the next chapter.

Chapter 4
Economic Links Between Formal Education, Credit, Deforestation and Well-Being Poverty in Rural Philippines - A Study at the Micro Level

4.1 Introduction

There are a variety of ways of attempting to determine the links among the level of formal education, access to credit resources, use of forest resources and the level of well-being in a community. The term 'well-being' refers here to what is for the 'good' of a person (Dasgupta 1993:8). What is for the 'good' of a person may, in turn, be defined within the context of the particular society of which this person is a member. In this chapter, the term 'well-being' is viewed in its broadest sense to include measures that are economic (in terms of per capita income) and social (education and public health) in nature. This approach is reflected in the construction by the United Nations Development Program (1997), of a Human Development Index. Also in this chapter, the term 'well-being' is interchangeably used with the phrase 'quality of life'.[81]

One general approach to the task of determining the possible links between the level of formal education and the level of well-being is to make use of apparently relevant sets of aggregate data across countries. Another general approach is to use the same data across regions within

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81 For a review of the literature on the search for a definition and measurement of well-being see Sycip and Luna (1993) and Noorbaksh (1998).

a country. Both of these general approaches, however, employ the methodology of drawing relevant, and often tenuous inferences from perceived measured statistical regularities between relevant economic and social variables.

A far more direct approach to deriving relevant information and insights is to select, carefully, villages within a community and hold focus-group discussions (FGDs) with groups of individuals living in these communities. A focus group refers to 'a small number of participants (usually six to twelve) from a target population who, under the guidance of a moderator, discuss topics of importance to the particular research study' (Knodel et al. 1988: 42). Apart from having a focus or a particular topic of interest, the group focuses on the opinions of people who are relatively homogeneous or have certain things, or experiences, in common (Hawe et al. 1990: 174). The use of FGDs is a qualitative technique that aims to collect a range of information and with greater depth from a target group on, for instance, the reasons for people's attitudes and behaviour (Hawe et al. 1990: 174). FGDs are conducted until a 'clear pattern emerges and subsequent focus groups produce only repetitious information' (Hawe et al. 1990: 176). Focus group discussions differ from individual interviews because the participants are encouraged to give their opinions, elaborate on them, as well as react to the views of their co-participants (Knodel et al. 1988: 42).[82]

Through the process of asking a range of appropriate and relevant questions, discussions are stimulated on the general topic of the links that are thought to run among for instance, formal education, credit,

82 For the potential advantages and limitations of focus group research, see Knodel et al. (1988: 43-5) and Morgan (1997: 13-7).

utilisation of forest resources and the level of well-being in this community. Naturally, for the FGDs to provide accurate and relevant information these discussions need to be carefully structured in order to minimise, if not eliminate, the risk of undesirable biases in the information generated. (This matter is briefly discussed in the next section.) Examples of the use of focus-group discussions employed to elicit relevant information, is to be found in Caldwell (1986) and Caldwell et al. (1988a and 1988b).

Assuming that this accurate information is created from the FGDs, then only comparatively limited, if any, inferences have to be made concerning what individuals consider to be the links and how these links are viewed among formal education, credit, the use of forest resources and their level of well-being. In addition, if appropriate questions are posed, useful information also can be generated relating to the possible links between, say, the level of formal education provided in a community and the degree of completeness of formal credit markets - two variables that, as Jacoby and Skoufias (1997: 330) have observed, are 'widely proposed as engines of economic growth' in developing countries.

Given this apparent comparative advantage of employing focus group discussions as a way of generating relevant information - a theme returned to in the concluding section 4.2 - this methodology was employed in two villages in the Philippines. To begin with, however, a detailed census survey was carried out in two carefully-selected villages.[83] The one village is to be found in a comparatively poor area in

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83 I would like to thank J. C. Caldwell for the advice he gave concerning the selection and design of the surveys used in the two Filipino villages concerned.

rural Philippines. The other village is located in a comparatively well-off part of the country. The particular selection of these two villages was motivated by the desire to generate data sets that contained comparatively diverse sets of observations since it is essential to obtain this diversity if any insightful comparisons are to be made. Subsequently FGDs were held with groups of individuals in the two villages to determine their views on education, credit, forest resources, the quality of the lives they lead and what factors influence the quality of their lives - or what factors made their lives become better or worse. There were six homogeneous focus groups, composed of fathers, mothers, unmarried sons, unmarried daughters, younger children and grandparents.

Some of the inferences that were drawn from these discussions are mentioned, briefly, here. One inference is based upon the fact (indicated later in sub-section 3.2) that whereas the parents in the better-off groups gave highest priority to the education of their children, this was not the case for parents in less well-off groups. For these latter groups of parents the matter of the survival of their families was a far more pressing concern than investing in the education of their children - especially since these groups faced relatively large economic uncertainties with no access to formal insurance markets and only limited access to informal credit markets. That these Filipino parents had different perceptions concerning the relative benefits to be derived from investing in the education of children suggests that legitimate questions can be raised as to the acceptability of often cited formulations that have been used to measure the level of community well-being - measures such as the Human Development Index (HDI) devised by the United Nations Development Program and the Dasgupta-Weale measure of well-being. The Human Development Index includes two measures of educational

attainment - the level of adult literacy and the combined level of enrolment in primary, secondary and tertiary education (UNDP 1997). The Dasgupta-Weale measure of well-being, on the other hand, includes a manipulated measure of adult literacy - along with per capita income, the infant mortality rate, life expectancy at birth and indices of political and civil rights (Dasgupta and Weale 1992 and Dasgupta 1993). Specifically, it might be argued that the structure of these measures of well-being attach too much weight, for certain communities, to the variable aggregate formal education (however measured) - at least after taking into account the actual preferences alluded to by representative groups to be found in the communities concerned. Exactly how much positive weight these various measures of community well-being place on the level of formal education is not immediately obvious. This is so because of the way that these measures are constructed. This matter is discussed, within the context of the Human Development Index, in Noorbaksh (1998). This issue will be returned to in subsections 3.2 and 3.2.1.

Another insight that emerged from the FGDs is that the incompleteness of the credit system in parts of rural Philippines appears to contribute towards (but is not solely responsible for) discouraging parents in poor households from investing in the education of their children. The absence of a well-functioning credit system and the low levels of education and income, among others, may also contribute towards facilitating the depletion of forest resources. That said, this study also indicates that in the circumstances that poor, isolated communities are faced with in rural Philippines - that do not have access to a range of basic pieces of infrastructure (such as all-weather roads, electricity, a safe water supply and a preventive health system) - there apparently are

few social, or private benefits to be derived from increased expenditures on subsidising the formal education and credit systems and investing in reforestation programs in such communities. The reason is that synergisms appear to operate, or a degree of complementarity exists between a number of elements that make up a basic system of infrastructure for such communities. Thus the increased provision of any individual element in this infrastructure system (such as expenditures on improved school facilities), without the other elements also being increased in size, probably contributes comparatively little to increasing the level of well-being for the community concerned.

This chapter is organised as follows. Section 2 reports on a baseline survey of the two selected villages in rural Philippines. This line of inquiry is extended in Section 3 by documenting the most revealing comments made in the FGDs held in these two villages to indicate what factors influence the quality of the lives of members of these communities. This information is also analysed and interpreted to infer how members of two villages in the Philippines perceived the benefits to be derived from credit, forest resources and education. These perceptions were used to determine the factors that appear to influence the level of household expenditures on the education of children. In the concluding section the information generated by the FGDs are drawn upon to gain some insights into how best to design more effective poverty-alleviation policies for rural Philippines. In this regard it is recognised that the inferences drawn from the FGDs are based upon a comparatively limited sample of information. Nevertheless, the qualified insights presented in this chapter are encouraging enough to suggest that there is scope for the further judicious use of FGDs in appropriate circumstances. Indeed, the limited use of this research tool has at least

as much to offer, in terms of generating relevant, useful and comparatively accurate information as that which can be gained from the use of some other more widely-employed research tools applied within the context that data sets are limited in range and content. This point of view is substantiated in the concluding sub-section (sub-section 4.2).

4.2. The initial surveys in two Filipino villages

Of the villages selected to be surveyed, one village is in the province of Masbate and the other village is in Benguet province. Masbate is an island province of the island of Luzon, while Benguet is found in the hinterland of Luzon island (see Figure 1). Masbate and Benguet have populations significantly different in terms of economic and social indicators as well as the availability of infrastructure facilities.

The province of Masbate, located south of Manila, was selected for study because the majority of its people are poor in well-being. Indeed, Masbate is the third poorest province in the country - based on per capita income and quality of life indicators of poverty. Based on 1991 data, Sulu and Maguindanao were the first and second poorest provinces in the Philippines using a minimum basic needs (MBN) index (PCFP 1995). As indicated in Chapter 3, the MBN index gives equal weight to eight indicators which are classified into four categories: income-based indicators - magnitude of families below the poverty line and incidence of poverty; education - cohort survival rate in education and population illiteracy rate; health and nutrition - infant mortality and malnutrition rates; and housing - water service coverage and percentage of households with no sanitary toilets. However, Sulu and Maguindanao were not

selected as research sites because it was unsafe to conduct the fieldwork in these two provinces due to peace and order problems. It is worth noting that since people in Sulu and Maguindanao have relatively low incomes and these two provinces are also politically and socially unstable, this may mean that in these two provinces economic factors and social and political stability are inter-linked.

Since most of the people in Masbate have low incomes, the revenues generated by the provincial government are also minimal. In terms of internally-generated revenues, the province consists mostly of sixth-class municipalities. A municipality is considered sixth-class when it has an average annual income of less than one million pesos (NSO 1994c: 1208 fn 6). Of its 21 municipalities, 76 per cent (or 16) are sixth-class municipalities. In addition, Masbate is located in a relatively poor region. Several studies have cited that Bicol is often one of the top five poorest regions based on poverty incidence; for example, see Rondinelli (1980: 8), Quisumbing and Cruz (1986: 16) and Balisacan (1993: 32 and 1994: 452).

On the other hand, Benguet province is the fourth most well off province in the Philippines also using per capita income and quality of life indicators. Using a minimum basic needs index, Batanes, Bulacan and Cavite were the first, second and third richest provinces in the Philippines in 1991, respectively (PCFP 1995). However, these provinces were not chosen for the study because they were not comparable to Masbate in terms of population size. Based on the 1990 census, Masbate has a population of about 600,000, Batanes island about 15,000, while Bulacan and Cavite have more than a million people. Also, Bulacan and Cavite are highly urbanised provinces with

the number of people living in the urban areas estimated at 80 per cent and 76 per cent of total provincial population, respectively (NSO 1993).

Benguet is part of the Cordillera Administrative Region which consists mainly of upland provinces. La Trinidad, the capital of the province, is situated approximately 256 kilometres north of Manila. Southern Benguet, particularly Baguio City, is part of the Northwestern Luzon Growth Quadrangle, which is one of the priority areas for growth of the Philippine Government.

As for the villages selected for study, one was San Juan in Mandaon, Masbate while the other was Nangalisan in Tuba, Benguet. The two villages were selected based on the following criteria: (a) one of the villages is income poor (that is, more than two-thirds of the households live at or below the poverty line of the province) and has minimal infrastructure facilities, while the other village is comparatively well off in terms of the level of average income and infrastructure facilities; (b) there had not been, as yet, any education, health, or family programs, apart from the normal government program in one village, while there had been in the other village; and (c) the villages are located near the forests.

Households included in the FGDs were selected by way of the procedure of randomly selecting every second household in each of the chosen villages. A household is defined as a 'social unit consisting of a person living alone or a group of persons who: (a) sleep in the same housing unit; and (b) have a common arrangement in the preparation and consumption of food.' (NSO 1995: xii). This sampling technique was also adopted by Caldwell et al. (1988b: 10) in their study of village

communities in South India. One hundred and three households in *Barangay* Nangalisan and 88 households in *Barangay* San Juan were randomly selected.[84] The total number of sample households was pre-set at 200 or 100 households for each village. The sample size was based on the funds for fieldwork and the time available for collection of field data and the number of observations required for statistical analysis. However, rather than taking a similar proportion of the total households in *Barangay* Nangalisan, the number of households surveyed in *Barangay* San Juan was increased from 30 to 88 households to make it comparable to that of *Barangay* Nangalisan.

A survey of the economic and social characteristics of these households was conducted at the early part of the fieldwork. Available relevant data sets were studied prior to the actual fieldwork. Secondary data were gathered from local libraries, archives and government publications or records. Such data were verified with key informants such as local leaders, primary school teachers and people who have resided in the villages for more than ten years.

A copy of the structured survey questionnaire is contained in the appendix (Annex 7). Pre-testing of the survey questionnaire and a preliminary visit to both sites were undertaken in December 1996. Follow-up visits to familiarise the author with the members of the community were made within two weeks prior to the full baseline survey. The full survey was conducted in Benguet by the author assisted by two local enumerators between March and April 1997 and in Masbate from July to August 1997 with the help of another two local enumerators. The

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84 A *barangay*, consisting of a group of families, is the smallest political unit in the Philippines. The terms *barangay* and village are used interchangeably in this chapter.

enumerators were thoroughly briefed on the purpose of the research and the contents of the survey instrument for half a day. The enumerators were either college graduates or graduating college students who knew the local dialect and who resided in the village or the province.

After the baseline survey was conducted, some members of each household were asked to participate in focus group discussions using a protocol guide (see Annex 8). For the sake of homogeneity, participants were grouped as follows: fathers; mothers; eldest (never married) sons; eldest (never married) daughters; younger children; and grandparents. To ensure greater control of the flow of discussion, the number of participants for each group was limited to six persons. Pre-testing of the protocol guide was likewise undertaken in both villages in December 1996. Focus group discussions were facilitated by the author using *Tagalog* and the local dialect with the assistance of a local translator. The FGDs were conducted in Benguet between May and June 1997 and in Masbate between August and September 1997.

The discussions took an average of thirty minutes in the case of the groups of children and an hour and a half for the rest of the focus groups. Aside from taking notes, I recorded the discussions on tape and then transcribed them in full. An informal presentation to the local community of the preliminary results of the discussions was made after the last focus group discussion was held in each site.

In facilitating the discussions, I was careful not to express my opinions about the subject matter so as not to influence the views of the FGD participants. Naturally it is important that the FGDs are designed in such a way as to minimise, if not eliminate, any undesirable biases

present in the information derived from the discussions. This is particularly so since it might be argued that, since the FGD participants come from a culture known to put emphasis on 'smooth interpersonal relations', these individuals may not reveal their true opinions and feelings regarding the topics discussed. Rather, they will only say what the researcher and other members of the group want to hear. In addition, for various reasons participants may hesitate to provide accurate information to a comparative stranger (the researcher) who they suspect of as being a government official. (For instance members of the community may believe that the information provided will be used by the authorities in such a way that it is to the detriment of this community.) In the attempt to avoid these potential impediments to gathering accurate information a number of strategies were applied. First, in order to gain the confidence of members of the local community, the researcher visited the villages to be surveyed some three to six months before the FGDs were held. Next, just prior to the FGDs the researcher emphasised to the participants in the initial discussions that they should provide honest answers to the questions to be posed and provide frank comments on any issues raised during the discussion. To encourage these responses it was pointed out that the researcher was not a government employee or from any private company and that the information generated by the FGDs was to be used for purely academic purposes. Certainly detailed personal information was not to be passed on to any government agency. In this regard it was pointed out that the group discussions were to be documented as a group response to the issues raised and, hence, the name of any single participant was not to be mentioned in the transcripts of the FGDs. Finally it was recognised that some participants may have reasoned that, as a way of gaining an increased level of reward for participating in the FGDs, they should provide answers that

they believed the researcher wished to hear. To discourage this behaviour an appropriate incentive system was created. Specifically, it was announced, prior to the FGDs, that a community raffle was to be held as a token of appreciation for members of the community participating in the FGDs. Thus the level of any reward a participant may receive was made quite independent of any comments this person made during the FGDs.

4.2.1 The baseline surveys

Barangay San Juan in Mandaon, Masbate is situated 14 kilometres south of the municipal capital. Its total land area is 1,390 hectares. The latest census shows that the village has 498 people and 97 households (NSO 1995). In contrast to other areas in Masbate, the village is not a coastal village nor is it rich in mineral resources. The village relies on rainfed farming and its major agricultural crops are rice and corn. The forests are about one and a half kilometres away from the village centre.

The infrastructure facilities for *Barangay* San Juan are near to non-existent and what exist are of low quality. Thus the village does not have its own postal service, telephone, or telegraph facilities. Mobility out of this *barangay* is limited. The few mini-buses or jeepneys that travel to and from the village, along poorly-maintained dirt roads, are overloaded with people, animals and products. The alternative means of transporting people and goods include water buffaloes, horses and bicycles. There is no village health station and the people have to go to the municipal or to the town capital in the attempt to meet their needs for health care. As for the water supply facilities, it consists solely of one

deep well. In 1989, the local office of the Department of Health reported that about 47 per cent of Level 1 water supply systems (water from point source) - such as deep wells - did not provide a safe water supply (Provincial Government of Masbate 1991: 143).

There is one public primary school (for grade levels one to four) where multigrade teaching is used.[85] Thus while one grade level is given set work, the students in the other grade level are asked to listen to the teachers lecture or recite in class. There is a 50 per cent drop-out rate of students attending this school.[86] A day care for pre-school children was set up recently by the village council.

As for the contrasting village, *Barangay* Nangalisan in Tuba, Benguet, it has a population of 2,049 persons while there are 356 households (NSO 1995). The estimated total land area is 1,048 hectares. Similar to most of the villages in Benguet, its major products are vegetables and rice. The village is surrounded by forests. It is connected to Baguio City by a 16-kilometre all-weather road. (Its construction required the building of two tunnels.) The roads to *Barangay* Nangalisan are generally in a better state of repair than those for *Barangay* San Juan. Above all the presence of this superior piece of infrastructure, along with irrigation, contributes to allowing vegetable and rice farmers to harvest two or more crops a year and a sizeable

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85 A World Bank report (1980: 40) pointed out that while there is evidence suggesting that multigrade teaching can be as academically effective as single-grade teaching, the success of this method will depend on the 'quality, dedication, and specific training' of the teachers. The World Bank did not cite specific studies supporting its assertion, however.

86 Based on a personal interview with a primary school teacher in the village it was established that for school year 1997-1998, there were 26 students in Grade 1, 23 students in Grade 2, 19 students in Grade 3, and 13 students in Grade 4.

proportion of these crops to be sold in the nearest city. The provision of electricity in most parts of the village also allows some families to engage in non-agricultural economic activities such as furniture-making and small metal industries. There are also three rice mills. There is a primary school, two elementary schools, a national high school, two day care centres, four parish churches and a village health station. Most of the households have water pipes connected to their houses. Spring water is the major source of water for drinking and washing.

Table 1 sets out some economic characteristics of the households in *Barangays* San Juan and Nangalisan based on an initial survey conducted in these two *barangays*. The household survey results show that, on average, households in *Barangay* Nangalisan are relatively better off than households in *Barangay* San Juan in terms of income and farm holdings. The reported average annual income[87] received by a household in *Barangay* Nangalisan (Benguet) is about 1.6 times greater than that of a household in *Barangay* San Juan (Masbate). In addition, the data in Table 1 indicates that access to a range of facilities such as ease of access to potable water, sanitation and electricity and the quality of the structure of household housing is, on average, much lower in *Barangay* San Juan than that found in *Barangay* Nangalisan.

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87 Household income was calculated by getting the sum of incomes derived from agricultural and non-agricultural sources in 1996. While the information on income was carefully surveyed, the data should be treated with caution because the figures were based on participant recall rather than on written records. However, the survey data were almost similar (although a little lower) to official figures on average annual income in the provinces of Masbate and Benguet in 1997. Questions on expenditures were not asked during the conduct of the household survey because it was observed during the pre-testing of the questionnaire in December 1996 that participants encountered even more difficulties in remembering household expenditures incurred in 1996 as compared to incomes earned.

TABLE 1. Selected Economic Indicators for two villages in the Philippines, 1997

INDICATOR	:Barangay San Juan (Masbate)	: Barangay Nangalisan (Benguet)
(Number of households)	88	103
Average annual nominal household income (1996)	33,694	55,347
LABOR		
In agriculture (%)	80.0	63.0
In non-agriculture (%)	20.0	37.0
AGRICULTURE		
Average Farm Size (in has.)	3.3	0.4
Farm area: irrigated (%)	0	78.5
tenanted (%)	62.4	47.7
INFRASTRUCTURE		
Ave. Length of Time to travel to source of water and back (in mins.)	16.0	3.0
Proportion of households with:		
electricity for home consumption (%)	0	65.0
electricity for home production (%)	0	16.0
potable water (%)	0	80.6
sanitary toilet facilities (%)	3.4	58.2
BASIC CONVENIENCES		
Proportion of households with:		
Electric stove or gas range	8.0	24.0
Refrigerator / freezer	0	38.8
Television	0	47.0
Radio	81.0	81.6
Motor Vehicle	1.0	4.0
Main material of household floor (%):		
Cement	2.0	71.0
Palm bamboo	66.0	8.0
Wood Planks	20.0	16.0
Earth/Sand	11.0	4.0
Vinyl	1.0	0
Parquet or Polished Wood	0	1.0

Note: Apart from income, all the data contained in the table are 1997 figures.
Source: Household survey conducted prior to focus group discussions

The data set out in Table 1 also indicate that the average household in *Barangay* Nangalisan, compared to that in *Barangay* San Juan, clearly has much greater access to a range of consumption goods. This fact also implies that the average household in *Barangay* Nangalisan has its basic food requirements satisfied - that is if this household is prudent and ensures that the demands for basic food are satisfied before other demands for consumption goods are met. The consumption patterns for the average household in *Barangay* San Juan

suggest the opposite; namely, that basic food requirements are not satisfied for this household.

These consumption patterns also allude to another aspect of how much better off the average household in *Barangay* Nangalisan is likely to be (compared to that in *Barangay* San Juan); namely, this household is better placed to smooth out its consumption of food should there be sudden perturbations in the level of real household income. The importance of this matter for determining the relative level of well-being for the average household in these two *barangays* is a matter returned to in sub-section 3.1.2.

The data set out in table 1 also indicate that households in *Barangay* San Juan, on average, have homes further away from their source of water than do households in *Barangay* Nangalisan. The survey results indicate that it will take an average household in the village of San Juan a return time of 16 minutes to acquire water, as against three minutes in the village of Nangalisan. As for the structure of dwellings in San Juan, the majority (86 per cent of those interviewed) used either palm bamboo or wood planks for their house flooring. In contrast, most of the houses in the village of Nangalisan had cement floors.

Barangay San Juan also has a lower proportion of households with electricity, potable water, sanitary toilet facilities and household conveniences. However, about four out of every five households in both *barangays* had radios. In the absence of newspapers in the village, the farmers said they rely on the radio to update themselves on the latest information on agricultural technology.

4.2.2 Infrastructure and the health status of children

Set out in Table 2 are some social indicators for the two *barangays* based on the survey results. On the whole, the survey data showed that people living in *Barangay* Nangalisan are comparatively better off than those of *Barangay* San Juan in terms of the education level attained. Basic literacy rates (based on the ability to read and write) are higher in *Barangay* Nangalisan than in *Barangay* San Juan. The overall basic literacy rate for *Barangay* Nangalisan is almost the same as that of Benguet province in 1990. In contrast, the basic literacy figure for *Barangay* San Juan is similar to that of Masbate province almost 30 years ago (in 1970). This fact may imply that the pace of development in *Barangay* San Juan is slow relative to other *barangays* in the province of Masbate. Above all those data indicate that in *Barangay* Nangalisan the average years of schooling attained was 28 per cent higher for males and 62 per cent higher for females compared to that for *Barangay* San Juan.

As for the measures of the health status (also set out in Table 2), they suggest that the children in *Barangay* Nangalisan are healthier than those in *Barangay* San Juan. Specifically, the proportion of children between one month and 60 months inclusive who were below 95 per cent of the median height for age using Filipino standards is higher in *Barangay* San Juan. In addition, in *Barangay* San Juan a higher proportion of young children had diarrhoea episodes in the two week period just prior to the baseline survey being carried out.

Table 2. Selected Social Indicators for two villages in the Philippines, 1997

INDICATOR	Barangay San Juan (Masbate)	Barangay Nangalisan (Benguet)
(Number of households)	88	103
EDUCATION		
Basic Literacy Rate (10 years old and over) Total	78.2	92.2
Male	73.5	92.6
Female	82.7	91.9
Average no. of years of education - fathers	6.75	8.67
Average number of years of education - mothers	5.72	9.24
Percentage of persons 25 years old and over with academic degree	3.9	14.8
Percentage of persons 15 years of age and over with no education:		
Male	.02	.02
Female	.04	.04
HEALTH		
Percentage of children aged 1 to 60 months below standard height:		
(based on P50 percentile)	78.0	60.0
(based on P95 percentile)	98.0	87.0
Percentage of children < 5 yrs. old with diarrhoea episodes in the last two weeks prior to the interview	12.0	7.0
Duration of diarrhoea episode (no. of days)	1 to 15	1 to 10

Source: Household survey conducted prior to focus group discussions

As far as the treatment of diarrhoea is concerned, mothers in *Barangay* Nangalisan applied oral rehydration therapy to treat children suffering from diarrhoea, whereas mothers in *Barangay* San Juan said they gave antibiotic or herbal medicines to treat their children with diarrhoea. As is well-known the former treatment for diarrhoea is far more beneficial than the latter (which is near to useless if not harmful (Muhuri et al. 1996). Finally, the duration of each diarrhoea episode was found to be longer in *Barangay* San Juan as compared to *Barangay* Nangalisan (see Table 2). Both of these differences (in the treatment of, and in the length of episodes of diarrhoea) probably reflect the higher level of female education, better living conditions (in the form of better

housing and nutrition) and the much better access to safe water[88] and other preventive health care facilities in Nangalisan compared to those found in San Juan.

This general assertion was tested by applying econometric techniques to determine what factors influenced the health status of young children in the two Filipino villages. The measure of health status employed is the height for age of children under the age of five relative to a suitable norm. Since the full details and findings concerning this study are set out in Chapter 6, further discussion concerning this matter is omitted here.

4.2.3 On forest resources

Most of the people in *Barangay* San Juan rely more on forest resources for their subsistence than people in *Barangay* Nangalisan (see Table 3). Since most of the people in *Barangay* San Juan do not have sufficient money to purchase commercial forms of fuel, such as liquefied petroleum gas, they gather fuel wood from the forest. This is a labour intensive activity - especially as the size of the forest diminishes. Households in *Barangay* San Juan, with very limited access to adequate infrastructure such as electricity, find that they require more children than would otherwise be the case to assist with gathering fuel wood. These additional children almost certainly act as a drain on the community, if not the household concerned, by placing more strain on

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88 For a survey of the literature on the link between childhood diseases and ease of access to safe water see Burger and Esrey (1995). In addition, Tonglet et al. (1992) provide an interesting study of the link between the incidence of diarrhoea in children and the time taken to walk to the nearest safe water supply.

common property resources, such as public forests.[89] In addition, the absence of electricity in the community means it is that more difficult to develop alternative, non-agricultural employment opportunities in the community.

TABLE 3. Selected Environmental Indicators for two villages in the Philippines, 1997

INDICATOR	Barangay San Juan (Masbate)	Barangay Nangalisan (Benguet)
(Number of households)	88	103
Main Source of Energy (%):		
Wood from Forests	76.0	31.0
Wood from backyard	23.0	3.0
Liquefied Petroleum Gas (LPG)	1.0	39.0
Combined wood from forests & LPG	-	17.0
Combined wood from backyard & LPG	-	7.0
Others (e.g., electricity, etc.)	-	3.0

Source: Household survey conducted prior to focus group discussions.

4.2.4 Concluding matters

Based on the data derived from the baseline survey, it is reasonable to conclude that households in *Barangay* San Juan may be considered to be relatively poorer in well-being compared to households in *Barangay* Nangalisan. This is so mainly because, on the average, household incomes are comparatively low and the people are less healthy. These outcomes are the consequence of the villagers in *Barangay* San Juan having less access, compared to those in *Barangay* Nangalisan, to basic infrastructure such as basic educational facilities, adequate roads, electricity, safe water, curative health care and irrigation - and, as will become clear when the focus group discussions are reported, near to no access to a formal credit market. There is also a relatively heavy dependence in *Barangay* San Juan on common property resources, such as the forests, for their daily subsistence. To

89 The matter just referred to in the main text is considered within the context of developing countries in general in Dasgupta (1995) and Dasgupta and Mäler (1995).

take advantage of these resources requires time be devoted to collecting forest timber for heating and building purposes. This tends to cause families in this *barangay* to be larger than would otherwise be the case.

4.3 Focus Group discussions on education, credit, forest resources and related issues in two Filipino villages

FGDs next were conducted to determine the perceptions that poor people have with respect to: (a) their economic and social circumstances, (b) their aspirations, (c) the matter of education and schooling, (d) access to credit and (e) the use of forest resources in the villages. More specifically, to begin with the participants in the FGDs were asked to define the term 'poor'. Using their definition, the FGD participants were also asked to comment on whether they thought that people in their neighbourhood are 'poor' at present (1997), were poor five years ago (1992) and will be poor in five years time (2002). The FGD participants were also asked if they thought that their quality of life was improving or not in terms of: (i) the household incomes they receive; (ii) reliance on traditional patrons or landlords and (iii) dependence on resourceful people required for their sustenance. They were also asked to comment on, or discuss issues that influenced their lives such as: (iv) consumption patterns and practices; (v) housing conditions and acquisition of consumer durables; (vi) day-to-day living; (vii) participation in different organisations; and (viii) access to credit. Finally, the FGD groups were also invited to answer questions on how important education or schooling was to them and how good they thought their local schools were. What is reported here is a summary, and some analysis of the essence of the range of comments that were made in the discussions dealing with this list of issues. A matrix which contains the

results of the FGDs by type of focus group and by village is found in Annex 9.

4.3.1 On poverty

4.3.1.1 Entrepreneurial ability

When asked to define the word *poor*, the FGD participants from *Barangay* Nangalisan responded differently from those in the village of San Juan. While several groups in both *barangays* mentioned the lack of job opportunities in their respective communities, nevertheless the groups from *Barangay* Nangalisan stated that, in addition, the poor are those who have not met their basic needs (which they defined as food, clothing and shelter) and educational requirements. In contrast, the groups from *Barangay* San Juan thought that the poor are those without adequate money income.

While the groups were not asked at this juncture if they thought that they were poor, some groups volunteered their opinion on the matter. The group composed of eldest never-married sons in Nangalisan believed that the people in their village were not poor because they do not possess the qualities of a poor person; namely, those, in their view, 'who do not work, are lazy, are uneducated, do not have many clothes and have no houses'. On the other hand, eldest never married sons and daughters in *Barangay* San Juan said that the people in their village were poor because they are unemployed and had no money or material assets.

Thus members of these two *barangays* had a rather different perception of poverty. Those in San Juan adopted the rather narrow

view that to reduce the level of poverty in a community, access to an adequate amount of money income was essential. In contrast, those in Nangalisan implicitly were concerned instead with placing households in a position where they were now capable of functioning more effectively - such as individuals possessing an adequate level of education and with access to facilities that assists with ensuring a reasonable health status (which implies having access to adequate shelter and clothing). Once these individuals were so equipped, they now also must be willing to work a socially acceptable number of hours (per week, for instance) to gain access to an adequate level of real income[90]. Thus those in Nangalisan were more concerned with well-being poverty and the capability to generate income for themselves, while those in San Juan were only concerned with income-only poverty. (This latter assertion is qualified later when the matter of economic uncertainty is introduced into the discussion.) For this latter group, satisfying immediate needs to ensure survival was of more concern than expending income on other goods and services that brought private benefits some time into the future. Perhaps, as those living in *Barangay* San Juan came to have access to an increased level of real income, they too would come to realise the importance of the need to increase the capabilities.

When the focus groups were asked if they thought that most of the people who (in the case of the males) were working at the same job as they performed, were poor five years ago (in 1992), a majority in

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90 Interestingly, the requirement implicitly stipulated by those participating in the FGDs in *Barangay* Nangalisan that the poor should work a socially acceptable number of hours, is a view that finds expression in Rawls (1993: 181 fn 9). Specifically he stated that: 'Those who surf all day off Malibu must find a way to support themselves and would not be entitled to public funds.' Rawls then qualifies his remarks by noting that his observations were 'not intended as endorsing any particular social policy'.

Barangay Nangalisan said no. The same response was obtained to a similar question asked of females. In contrast, almost all of those in San Juan thought they were poor five years ago.

Within this context grandparents in *Barangay* San Juan observed, however, that the farmers in the village had been given an opportunity to improve the quality of their lives five years earlier through the agrarian reform program, yet they had not taken full advantage of this government assistance. Instead, since the beneficiaries of agrarian reform in *Barangay* San Juan had not paid their annual dues, their lands had been re-possessed by the Development Bank of the Philippines, lands which, in turn, were sold to absentee cattle ranchers. Consequently, now most of the farmers do not own the lands that they till.

This sequence of events suggests, therefore, that there is a dearth of entrepreneurial ability in this community since, when faced with a potentially useful new economic opportunity, members of *Barangay* San Juan failed to take full advantage if it. As further evidence of this apparent situation, it is also noted that this community did not have any organisations that might further the interests of this community. In contrast, the FGD participants in *Barangay* Nangalisan reported that they participated in different kinds of organisations such as religious groups, school-based groups, women's groups, farmers' associations and the rural improvement club. Among the benefits that the members derive from participating in these organisations are seed capital for income-generating projects, training and making contacts for developing business opportunities. In the case of *Barangay* San Juan, it was observed that instead of engaging in income-generating projects several villagers spent their time drinking liquor and gambling in front of the local

retail store. Also, as reported by the senior members of *Barangay* San Juan and as I observed during my fieldwork, these activities often led to neighbourhood quarrels and acts of violence.

Despite these observations, the conjecture that there is a relative dearth of entrepreneurial ability in *Barangay* San Juan cannot be tested directly. This is so since *Barangays* San Juan and Nangalisan are not equally endowed with natural resources and infrastructure. Indeed, since *Barangay* San Juan in contrast to *Barangay* Nangalisan does not have access to an all-weather road, and there is no formal credit system provided in the village (a matter returned to later), there really is little or no scope for members of this *barangay* to engage in entrepreneurial activities. That said, in the opinion of the elder members of *Barangay* San Juan, due to the apparent lack of entrepreneurial ability in that *barangay*, its members had not taken advantage of a relatively important economic opportunity that became available in the early 1990s.

The reasons for emphasising the issue of the relative amounts of entrepreneurial ability to be found among rural communities are twofold. First, others also have observed that variation in this variable may assist in explaining the relative level of economic performance of comparable communities. Thus, for instance, Knight and Li (1997) suggest that variations in the amount of entrepreneurial ability to be found among members of comparable rural communities in the People's Republic of China appear to explain, at least in part, some of the sharp differences in the level of the economic achievements attained by the communities concerned. Second, and most important of all, this line of argument suggests that any effective poverty-alleviation program in a developing country may need to take into account of the variation in entrepreneurial

ability that exists between communities. For those communities fortunate enough to have as its members individuals who possess relatively large amounts of entrepreneurial ability, the provision of a well-designed credit scheme, for instance, may assist appreciably in raising the level of well-being in this community. In contrast, such a credit scheme is likely to achieve comparatively little if members of this community, through no fault of their own, are not blessed with adequate amounts of entrepreneurial talent. For this community, some alternative poverty-alleviation program (such as the provision of an assistance-for-work program directed at the building of basic infrastructure) may be a more effective way of raising the level of well-being in this community. Implicit in the comments just made is allusion to the view that variations in well-being between communities in a country can be explained to some degree by the presence of luck, where part of this luck takes the form of random variations in the level of entrepreneurial talent to be found in different communities.

4.3.1.2 Future prospects, uncertainty and a risk-adjusted measure of poverty

The FGD participants in *Barangay* Nangalisan were generally optimistic about their future socio-economic prospects. They thought that they would not be poor five years from now (year 2002) because of the following reasons: most of the people in *Barangay* Nangalisan work hard and help each other in the attempt to achieve common community objectives. In addition, wives help their husbands by also working as self-employed entrepreneurs, the government and non-governmental organisations are helping the poor by providing financial support for income-generating projects and most of the children are enrolled in

school. In contrast, the FGD groups in *Barangay* San Juan were less optimistic about their future prospects since they thought that they would be poor in the future, although they said that their economic fortunes might improve if the following occur: people work hard to improve themselves and waste less time drinking liquor and gambling, farming becomes more productive and children finish their studies and find good jobs.

This set of comments suggests that members of these two *barangays* held quite different perceptions about their future life prospects. Other comments made during the FGDs suggest that these different perceptions could be derived from certain realities that influenced the abilities of these two communities to smooth out future income, and in particular, consumption streams. To explain further: to begin with, the majority of the mothers in *Barangay* Nangalisan stated that they possessed ready cash of 500 pesos or more at home to tide the household through the slack season. Seasonal out-migration of household members, as a way of stabilising household income, was not practised except by some who had received relatively high levels of education. These individuals migrated overseas, however. (Since employment opportunities in the Philippines are comparatively limited for those possessing relatively high levels of education, the best educated in the community see the need to migrate overseas in order to increase the economic return on their skills.)

Households in *Barangay* Nangalisan also took advantage of credit provided by the Land Bank of the Philippines. (The issue of credit will be referred to in detail in sub-section 4.3.3.) Thirty per cent of the fathers relied on such credit. Those fathers who could not obtain credit

from the formal credit market stated that this was because they did not possess assets to offer as collateral to underwrite loans. In addition, they were afraid that they would not be able to repay any loans taken out because they did not have access to a stable income stream. These individuals borrowed, instead, from suppliers of inputs, landowners and from their relatives. Nevertheless, the strong impression gained from the FGD interviews in *Barangay* Nangalisan was that any instability in household income streams could be smoothed out by taking out a loan in the formal, or the comparatively well-organised informal credit market.

In contrast, members of the focus groups for *Barangay* San Juan stated that households in this *barangay* did not have access to a formal credit market, and only had a very limited informal market to offset the consequences of the unstable income streams that they faced - income streams made that more unstable by the fact that only rainfed agriculture was practised in this *barangay*. To mitigate this instability, by way of diversifying sources of household incomes[91], the majority of the focus groups stated that their relatives go to Metropolitan Manila to work as domestic helpers or factory workers.

This need to migrate was made more pressing by the fact that most of the farmers in *Barangay* San Juan are sharecroppers on land owned by their patron. And since most of their patrons live in the town capital or in MetroManila that is relatively far from the village, these patrons are not in a position to be asked to provide loans (in cash or feed grains) to members of the focus group. As a result, most of the people in *Barangay* San Juan secured loans from the village captain, rich

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91 Also, see Teitelbaum and Russell (1994: 234).

neighbours, siblings and friends. In addition, it was not possible for most (that is, some 90 per cent) in this *barangay* to secure loans in the formal credit market due to the fact that few could secure such loans by providing land as collateral. Indeed the lack of credit in this *barangay* was so severe that no household could obtain credit from the local retail stores - all purchases were made in cash. This situation did not apply in *Barangay* Nangalisan.

Consistent with this comparatively limited range of facilities available to smooth out income and consumption instability in *Barangay* San Juan, access to savings was near to non-existent. Specifically, only ten per cent (two out of twenty) of the mothers who participated in the FGDs had access to 500 pesos or more savings during the slack season. This fact, and the dominant system of land ownership in this *barangay*, also implies that most households had no assets that could be traded in times of severe economic distress. This lack of assets available to households in *Barangay* San Juan contrasts sharply with that to be found in some other less well-off communities in developing countries. For instance, in certain communities in Zimbabwe, surveyed in the 1980s and up to the mid-1990s, Kinsey et al. (1998) report that the ownership of livestock essentially is a store of wealth which can be sold if necessary to smooth out consumption patterns. In particular, in times of a severe decline in food production in these communities, livestock are sold to finance the purchase of food. Interestingly, these sales also are used to finance educational expenses - and a range of other lesser expenditures. This sort of mechanism for smoothing out food consumption patterns and the payment of educational expenses is not available, however, to poor households living in *Barangay* San Juan -

even though livestock are raised in this *barangay* by comparatively wealthy absentee landowners.

It was not surprising, therefore, to be told during the FGDs that the amount of rice produced by farming households in *Barangay* San Juan was just enough, after meeting their contractual obligations as sharecroppers, to meet their consumption needs. Hence, up to the next rainy season, there was minimal or no surplus at all for sale.

It follows from these various observations that households living in *Barangay* San Juan, compared to those living in *Barangay* Nangalisan are faced with far more economic uncertainty, which cannot be insured against in the formal, and only to a limited degree in the insurance market. If the members of *Barangay* San Juan and *Barangay* Nangalisan have access to formal credit, then it could be argued that these individuals have access to *ex ante* insurance if economic shocks are always anticipated. This is so since in this instance credit could be raised in this market, before any anticipated shock, to smooth out consumption. If, however, economic shocks are not anticipated, then clearly in this instance the credit market cannot provide *ex ante* insurance, it can only provide *ex post* insurance.[92] Since, however, some 90 per cent of the members of *Barangay* San Juan have no access to the credit market this group, therefore, has no access to *ex ante*, or *ex post* insurance by way of the formal credit market. These groups also have access to only a very limited informal credit market. In contrast, some 30 per cent of the members of the *Barangay* Nangalisan community have access to at least *ex post* insurance through the formal

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92 See Jacoby and Skoufias (1997) for a discussion of *ex ante* and *ex post* insurance provided by credit markets.

credit market. Most of the rest of this community obtain at least some of this insurance through the informal credit market. It seems reasonable to presume, therefore, that these facts tend to lower the level of well-being for the average household in *Barangay* San Juan compared to that for the average household in *Barangay* Nangalisan - other relevant factors remaining the same such as that members of these two communities possess similar preferences and are risk-averse.

To explain these presumptions, first it is assumed that a representative household, h, possesses an expected well-being function of the following form:[93]

$$E[v(y^h)] = E[v(m^h + e^h)], \qquad (1)$$

where E denotes the expectations operator, v(.) denotes the actual well-being function for household h, y^h denotes the actual current level of income received by this household, m^h denotes the mean level for the real income stream received by this household over some relevant period of time, and e^h denotes a random element in the actual current level of real income received by household h. The levels of y^h and m^h respectively also refer to the current situation after any formal, or informal credit has been provided, or any repayment of loans has been made.

Assuming that equation (1) is continuously differentiable, it can be manipulated (after applying Taylor's expansion and a few regularity assumptions) so that:

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93 The discussion in the main text draws on Martina (1996) and the references cited there.

$$E[v(y^h)] = v(m^h) + \frac{1}{2}[s_e^2]^h[v'']^h \qquad (2)$$

The term, $[s_e^2]^h$ denotes the variance of e^h, and the term $[v'']^h$ denotes the second derivative of the well-being function, $v(y^h)$ with respect to m^h for household h. The term $[v'']^h$ is assumed to take a negative value for any h household - an assumption that implies that all households are risk averse or averse to variations in their income streams - other things remaining the same.

Consistent with the assumptions referred to in the paragraph just above equation (1), the assumption is applied to equation (2) that the function v(yh), for the average, or representative, household in *Barangay* Nangalisan is the same as that for the average household in *Barangay* San Juan. This implies that the representative households for the two communities possess identical preferences. (This assumption is imposed for the sake of simplicity. Relaxing this assumption in particular ways will not alter, however, the relevant conclusions arrived at. This is so if it is assumed, for instance that, at a given level of mean income, the average household in *Barangay* Nangalisan attains a higher level of well-being and is less risk-averse than the average household in *Barangay* San Juan. To demonstrate this assertion complicates the argument set out here and is therefore ignored.) This assumption implies, among other things, that the respective representative households are risk averse to the same degree at any given common level of m^h. It is also assumed that the marginal utility of income is positive. For the present it is also assumed that the representative households receive the same level of mean income, μ.

With these assumptions in place, and since it seems reasonable to assert that the size of the variance in the partially insured[94] income stream, $[s_e^2]^h$, for the average household in *Barangay* San Juan is greater than that for the average household in *Barangay* Nangalisan, it follows that the size of the expected level of well-being for this latter household is greater than that for the average household in *Barangay* San Juan. This conclusion would not be altered by relaxing some of the assumptions that have just been made to bring them more in line with the actual situation to be found in the two *barangays.*

In this regard first it is noted that the level of real income received by the average household in *Barangay* Nangalisan is greater than that for the average household in *Barangay* San Juan. It follows, given the assumptions set out in the previous paragraph (that $v(m^h)$ is identical for the two representative households and that the marginal utility of income is positive), that the average level of *certain* well-being - represented by the first term on the right-hand side of equation (2) - is larger for the average household in *Barangay* Nangalisan than that for the average household in *Barangay* San Juan. Second, and turning to consider the second term on the right-hand side of equation (2), it is noted that the term, $[v'']^h$ is likely to take a lower absolute value for the average household in *Barangay* Nangalisan than that for the average household in *Barangay* San Juan. This is so since, to begin with, it is known that households tend to become less risk averse as the level of real income they receive increases in size. This assumption is based, in part, upon the empirical evidence to be found in Binswanger (1981) and Antle

94 This insurance may take the form of *ex post* insurance, which means that credit is used to offset any sudden declines, in the recent past, in household income.

(1989). In addition, the earlier assumption needs to be applied so that the form of the function, $v(m^h)$, is the same for the average household in both *barangays*. Finally, the observation is recalled that the level of real income received by the average household in *Barangay* Nangalisan is greater than that for the average household in *Barangay* San Juan. This reasonable possibility, along with the fact as noted earlier that the value of $[s_e^2]^h$ is smaller for the average household in *Barangay* Nangalisan than that in *Barangay* San Juan, implies that the second term on the right-hand side of equation (2) must take a smaller negative value for the average household in *Barangay* Nangalisan than that for the average household in *Barangay* San Juan.

On piecing these various inferences together it seems not unreasonable to suggest, therefore, that the greater level of economic uncertainty faced by households in *Barangay* San Juan, along with the lower level of real income they received, probably caused them to experience a lower level of expected well-being than that experienced by households in *Barangay* Nangalisan - other things being kept the same. And this is so, in part, due to the greater uninsured variance in the income stream faced by households in *Barangay* San Juan. This is not to say that other factors should not be taken into account when attempting to rank the levels of well-being for these two *barangays*. The information provided in the previous section suggests, however, that allowing for other relevant factors - such as the level of health status, the level of education and access to a range of infrastructure - would not alter the general conclusion that has just been arrived at.

4.3.1.3 Consumption patterns

While I do not have information on the consumption patterns of the two *barangays,* I do have this information for the provinces of Masbate (in which *Barangay* San Juan is to be found) and Benguet (in which *Barangay* Nangalisan is to be found) for 1994.[95] What is more this information is suggestive of the sort of consumption patterns to be found in the two *barangays.* For this reason this information is briefly assessed here.

In broad terms, consumption patterns in both provinces are similar, but not identical. There were two major points of difference. Whereas, on average, 58.4 per cent of total household income was expended on food, beverages and tobacco in Masbate, this percentage was 54.8 per cent in Benguet. The other major point of difference was the proportion of total income spent on education - the average proportion was 2.4 per cent in Masbate and 5.2 per cent in Benguet.

These differences are what one would expect - given what we already know about the two provinces. To begin with, it is well known that better off (compared to less well off) households tend to spend a smaller proportion of their income on food - assuming that the relative prices facing households are the same (at least approximately so).[96] In addition, if one household has better access to credit, compared to another, and both households are of similar composition and have children, then one would expect the former household to spend a greater proportion of its income on the education of its children. Both of these

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95 The data is taken from NSO (1996).

96 Evidence of this for a developing country (specifically India) is provided, for example, in Rao (1981).

surmises are supported by the data set out in the previous paragraph.[97] That said, the matter of the expenditure on education is an issue considered later in more detail.

As for the types of expenditure made in the two *barangays,* however, some detail can be provided. The majority of the people in both villages occasionally consumed green vegetables, milk and milk products, sugar, as well as rice. While all the participants in *Barangay* Nangalisan had three meals a day during both the harvest and the slack season, some of the participants in *Barangay* San Juan said that sometimes they had two meals only during the slack season. Since household members are more mobile in *Barangay* Nangalisan, shoes are worn more regularly in that *barangay* - especially when the household members travel to Baguio City. There have also been noticeable changes in eating and food preparation in *Barangay* Nangalisan such as the variety in the food that they eat and buying of canned goods and instant meals. The mothers in *Barangay* Nangalisan attributed these developments to the increase in the number of married women who are working outside their homes. These changes have not been experienced in *Barangay* San Juan.

4.3.2 Overall perceptions of the quality of life

When asked what they wanted most in life, the participants in the FGDs from *Barangay* Nangalisan mentioned education. Fathers and mothers wanted most to have their children finish their studies. Eldest

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97 The observations that have just been made in the main text, concerning the influence that access to credit has on expenditures on education, tend to confirm the extended argument to be found in Jacoby and Skoufias (1997).

never married sons and daughters and younger children said they wanted to complete their studies and find a good job, or start their own business. In contrast, the participants from *Barangay* San Juan wanted most to improve their lives to a point where they could be sure that they would survive and meet their daily needs. The children, however, wanted most to finish their studies.

It follows that in the instance of the parents, at least, the levels of aspirations differ markedly between the two *barangays*. The primary concern of parents in *Barangay* San Juan is to take care of subsistence needs of their families. It follows immediately that these parents tend to give a comparatively low priority to allocating any of their limited budgets to the schooling of their children. This fact was reflected in the comments made by parents that they encountered difficulties in providing for the educational needs of their children. In addition, the preferences of these parents for meeting basic subsistence needs, instead of allocating more to the education of their children, are reflected in revealed behaviour. Specifically, as indicated earlier in sub-section 2.1 the schooling facilities in *Barangay* San Juan were markedly inferior to those to be found in *Barangay* Nangalisan. Indeed, in this latter *barangay*, where basic consumption needs are comparatively easily met, the education of the children is a priority concern for both fathers and mothers. And this concern could be met, to a reasonable degree, since households in this *Barangay* received comparatively large real incomes and at least 30 per cent of parents have reasonably good access to the formal credit market (see the discussion in the previous sub-section).

4.3.2.1 Implications for the measurement of well-being

One of the possible implications that may be drawn from the observations made in the previous sub-section was touched upon in the introduction where it was suggested that widely-cited measures of community well-being (such as the Human Development Index and the Dasgupta-Weale measure of well-being), when applied to certain communities, result in too great a weight being attached to the level of aggregate formal education attained in the community concerned.

In extending those brief comments, first it is noted that the discussion in the previous sub-section indicates that parents in an extremely (absolutely and relatively) poor community are likely to place little or no value on formal education (compared to that found in a better-off community). One exception to the statement just made is that of the State of Kerala in India. In the late 1970s and early 1980s Kerala was ranked as one of the poorer states in India (with a headcount measure of poverty of 33.7 whereas that for all-India was 34.4) and yet, at that time, it had an adult literacy rate of 78 per cent which was well above that for all-India (which was 41 per cent). (These data are taken from Kakwani and Subbaroa (1993: table 18.10) and Dreze and Sen (1989: 223)). In addition, Caldwell (1986) provides a discussion of the importance given to the provision of basic education by the community in Kerala in the early 1980s and earlier. It is emphasised, however, that Kerala is a quite exceptional case - on this point also see Caldwell (1988b) and Sen (1981). This case, therefore, should not be taken to represent the average situation to be found in poor communities in developing countries.

For the extremely poor community survival is paramount. Thus if the preferences of these parents are the only ones that are to count in devising the structure of some acceptable measure of well-being for this community, then this measure will give little or no weight to the measure of formal education attained in this community. It is acknowledged, however, that the relevant preferences of the parents in *Barangay* San Juan were in conflict with those of their children - children who, as noted in the previous sub-section, wished to complete their studies. However, implicitly it is being assumed that the parents are more informed than their children about the benefits to be derived from formal education. This is not an unreasonable assumption since the children interviewed were only in the age group 5 to 12 years. Consequently only the relevant preferences of the parents are to count in assessing the structure of some appropriate measure of community well-being.

In contrast, the observations in sub-section 3.2 also suggest that a better-off community would place a greater value on formal education. Consequently, and again if the preferences for this community are the only ones that are to count in the structure of the measure of well-being for this community, then this measure will give a greater positive weight to the measure of formal education attained by this community than that applied by the poor community.

It follows that, in the structure of the measure of community well-being, the social weighting attached to formal education will tend to vary across communities to reflect the differing preferences that these communities possess for this good. That said, this system of weighting is in sharp contrast to the actual structure of any of the widely-cited measures of community well-being (mentioned earlier). In these latter

measures the weighting of formal education (and any other variables utilised in these measures) is fixed across all communities. [98]

To justify this latter system of weighting it might be argued that members of the poor community are inadequately informed about the relatively high level of private and social benefits to be derived from investing in basic education. Consequently, if this community was in possession of accurate information about these matters it would adopt a set of preferences that give far greater weight than it actually does to formal education. If this argument is accepted, then it would seem reasonable to over-ride the actual expressed (but ill-informed) preferences held by this community by imposing the system of social weighting reflected in the structure of some widely-cited measures of community well-being. In short, paternalistic preferences are being applied to determine the level of well-being of absolutely poor communities.

This line of argument is not completely convincing, however, bearing in mind the information reported in section 3.2. Since parents in the poorest community referred to there place a priority on survival, these parents would tend to discount, heavily, any 'accurate' information provided concerning the benefits from private investments in formal education. Members of this community, therefore, really are in possession of the only accurate information that matters as far as they are concerned for making informed judgments to determine the influence of formal education on the level of well-being for this community.

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98 See Noorbaksh (1998) for more information on this point.

That said, no doubt the 'paternalistic' structure of widely-cited measures of community well-being will continue to be applied extensively. For one thing these measures allow comparatively easy calculations of levels of 'well-being' for a community. Nevertheless, this paternalistic aspect of the structure of the measures of community well-being is not above criticism for the reasons just indicated.

4.3.2.2 More on education

Expanding on the general theme of education, fathers and mothers in both *barangays* said that they observed that the costs of education together with food, clothing and shelter needs have been increasing. While the government provides free elementary and secondary education, parents said they still had to set aside funds for their children's daily allowance, school supplies, uniforms and projects. In *Barangay* Nangalisan the Plan International, a non-governmental organisation (NGO) provides income-poor families with uniforms and supplies worth 900 pesos per child enrolled in elementary school. Also, for mothers who volunteer as *barangay* health workers, one child is sent to college to study with the education fees being met by the government. In *Barangay* San Juan, however, there is no additional support to households, financial or otherwise, from the government, NGOs or the private sector, for the schooling of children.

While some fathers said they occasionally withdrew their children from school to help on the farm, all the mothers from both *barangays* said they never did, although they requested their children to come home immediately after school to perform various chores at home. Parents and grandparents from the two *barangays* commented that in

their youth they themselves had been withdrawn from school by their own parents to work at home or on the farm. What also was agreed upon by most of the fathers and mothers in *Barangay* San Juan who participated in the FGDs was that a child in school means less labour for farming and performing household tasks.

Nevertheless, children were still expected by the parents in *Barangay* San Juan to assist with household chores. From the age of five children assist with cleaning the house and the backyard, cooking food, washing dishes and clothes, ironing clothes, minding their siblings, caring for livestock, leading animals to pasture, fetching water, gathering fuel wood and fodder and taking messages to other people. Mothers said that their children helped them between five minutes to two hours a day. The children, however, stated that they helped their parents between half an hour to half a day. Since parents probably wished to be seen by others as behaving as responsible parents, I suspect that the children were providing more accurate information on the hours they spent on carrying out household chores.

As a further indication that this is so, it is noted that one of the two teachers in *Barangay* San Juan observed that, because the children had to help with farm and household work after school, they have little time to do their homework. In addition, in the absence of electricity, the children use kerosene lamps to study in the evenings. These factors, along with the lack of interest and involvement by the parents in their children's studies, led this teacher to observe that children do not perform well in school. As further evidence of the poor quality of the education provided it is noted that, in an election recently held in the *barangay* (for the post of village captain), it was alleged that many

voters (what proportion is not known) placed their candidates' names in the wrong places on their ballot forms.

Almost all of the groups of fathers, mothers and grandparents in both *barangays* think that the schools in their area are 'good' based on their observation of their children or grandchildren who learned how to read and write. The parents and grandparents said their schools are 'good' because they think their teachers are of high quality. Some parents said they believed that the local schools are 'good' because their children who studied in the village were able to reach college.

The FGD participants also noted that their children and those of their neighbours who finished college did not return to the village because there were so few employment opportunities available in their locality. These communities, therefore, experienced a drain of educational talent out of the community. While this represented an economic cost for these communities, there also was a potential benefit; namely, if remittances were sent back to the parents then this provided a diversified source of income for the households concerned.

4.3.3 On credit[99]

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99 Apart from asking participants of FGDs their experiences in availing themselves of loans from the formal and informal credit markets, detailed questions on credit-related issues such as market interlinkages, transaction costs, lending terms and procedures and repayment performance were not asked. Nor did the author conduct interviews with banking institutions and private moneylenders in *Barangays* Nangalisan and San Juan or in the town centres. This is because the research was not intended to be a study of credit *per se* but rather on the use of credit in relation to the level of formal education and the use of forest resources. While these may be considered as a limitation of the present study, these issues were studied in detail in previous research on credit. Discussions of various aspects of credit markets in the Philippines are to be found in studies such as Collado (1975), Matienzo (1978), The Presidential Committee on Agricultural Credit (1981), Corales and Cuevas (1987), Floro (1987), Tolentino (1987), Abiad et al. (1988), Tolentino (1988), Agabin et al. (1989), Russell (1989), Teh (1991), Llanto et al. (1993), Mask (1995) and the World Bank (1996).

People in rural areas mainly rely on agricultural incomes which are highly unstable - especially if households were dependent on rainfed agricultural methods of production. The instability of agricultural incomes, in turn, may be traced to factors such as the effect of weather disturbances, pests and fluctuations in commodity prices. Since their incomes are unstable, most of the time rural folk have low liquidity positions (Besley 1995: 2127) unless they can build up reserves in a good season. Also, as discussed in sub-section 3.2.1, since their incomes are volatile, the rural poor are faced with economic uncertainty - a factor that lowers the level of well-being of risk averse poor households. To add to these difficulties is the fact that credit markets, among others, in developing countries such as the Philippines, are incomplete.

The formal sources of credit in the Philippines are government-owned banks, private banks and other credit institutions registered with the Securities and Exchange Commission. Formal sources of credit are often faced with risk and information-related problems such as adverse selection (lenders may not observe the relevant characteristics of borrowers prior to providing the loan) and moral hazard (lenders may find it too costly to observe the relevant actions that their borrowers take after securing the loan)[100]. In addition, government-supported rural credit programs were observed to suffer from deficiencies in design and implementation[101]. In the Philippines, for instance, two reasons why

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100 For a discussion of these two information-related problems confronting a credit market, see Besley (1995: 2131) and Hoff et al. (1993: 4-5).

101 To cite a few, a discussion of credit market experiences in various countries such as Northern Nigeria, China, Thailand and India are contained in Hoff et al. (1993) and in

subsidised credit programs encountered high default rates were the lack of proper loan appraisal and loan supervision (Collado 1975: 231 and IFAD 1985: 67). Income-poor borrowers were also found to tend to have higher incidences of loan default than middle-income and rich borrowers (Floro 1987: 200-3) [102].

Informal sources of credit, on the other hand, include relatives, neighbours, friends, landowners, input-dealers and private moneylenders. They are easier to access because there are no forms to complete and collateral is not often required. However, loans of this type are usually based on 'non-price considerations such as patron-client relationships and other forms of social relations binding the contracting parties' (IFAD 1985: 11). In the rural areas, poor people are more likely to borrow from the informal credit market and rely less on formal financial resources because they 'tend to lack reliable forms of collateral, are less likely to be literate and numerate, may face higher transaction costs and lack the influence needed to gain subsidised loans' (Besley 1995: 2125). Examples of studies on informal credit markets in the Philippines include the Presidential Committee on Agricultural Credit (1981), Floro (1987), Agabin et al. (1989) and Floro and Yotopoulos (1991). This experience is reflected to varying degrees in the two villages in the Philippines.

The results of the focus group discussions in *Barangay* Nangalisan and *Barangay* San Juan revealed that a majority of the people rely more on informal than formal sources of credit. As pointed out in sub-section 3.2.1, 30 per cent of the fathers in *Barangay*

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the Philippines, see Matienzo (1978: 3-6), Corales and Cuevas (1987: 2-10), Tolentino (1987 and 1988: 19-22) and Abiad et al. (1988: 3-5).

102 Or that the higher the family net income, the higher is the rate of loan repayment (Matienzo 1978:151-2).

Nangalisan who participated in focus group discussions said they have availed themselves of agricultural loans from the Land Bank of the Philippines. A majority of those who availed themselves of these loans reported that they did not encounter any problems in borrowing from these sources. The FGD participants from *Barangay* Nangalisan who reported that they had difficulties in paying their loans attributed their difficulty to the increase in household expenditures, particularly their children's tuition fees. FGD participants who were unable to borrow from the Land Bank reported they did not avail themselves of government loans because they did not have any assets to offer as collateral[103] and no stable sources of income. These participants said that they borrowed instead from informal sources, in particular, from suppliers of farm inputs, landowners, or from their relatives. In contrast, all of the fathers from *Barangay* San Juan said they have never secured a loan from the formal credit market because there were no such facilities in the village. Most of the banking institutions are located in the capital town of Masbate which is forty-five (45) kilometres away from the village.

In the case of mothers, half of the participants from *Barangay* Nangalisan have taken advantage of credit facilities such as the Government Service Insurance System and the Social Security System. The FGD participants said they did not encounter any difficulties with borrowing and paying their loans since payments were automatically deducted from their salaries. However, while they may have access to the credit facility of the Land Bank, they did not take advantage of the

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103 The majority of Benguet farmers do not have titles to their lands. Under Presidential Decree No. 705, all lands with a slope of 18 degrees or more are considered as forest reserves and are excluded from titling since these are considered public lands. Since Benguet farmers do not have land titles, they are not eligible to avail themselves of formal sources of credit (Bantly n.d.: 12). It was learned from the FGD participants that those who were able to secure loans from the Land Bank have titles to lands in the lowlands and are members of the local farmers' association.

bank's loans because they found the interest rates high and they lacked information on the requirements for collateral. Instead some of them borrowed from persons rather than institutions. About ten per cent of the FGD participants were able to borrow from the local Catholic Church. The church had received grants from overseas and distributed loans to women in the village (regardless of religious denomination) using the Grameen Banking approach[104]. In contrast, 95 per cent of the mothers in *Barangay* San Juan reported that they did not secure loans from formal credit sources because, as their husbands said, these facilities were non-existent in the *barangay*. Hence, they relied on themselves and their neighbours. A group of mothers said that *Barangay* San Juan used to have a credit cooperative six years ago (1991). They found the cooperative important to them because they were able to borrow consumer goods from the co-op store and pay the cost of goods in the succeeding month. However, the officers decided to close the cooperative when most of the members decided to withdraw their contributions of 100 pesos each (about 2.5 US dollars using a US$1 = Philippine 40 pesos exchange rate) due to lack of money for daily needs.

A similar picture was depicted by the elders in these two communities. Grandparents in *Barangay* Nangalisan reported that they were able to borrow from neighbours and the local savings and loan association. In contrast to that of *Barangay* Nangalisan, but similar to what their children (and daughters-in-law or sons-in-law) reported, grandparents in *Barangay* San Juan said they were unable to avail

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104 The Grameen Banking approach, a popular credit scheme for the poor which originated in Bangladesh and which is known to have repayment rates as high as 97 per cent, was first adopted in the Philippines in 1989 in Laguna (South of Manila) as a research-cum-action program. Since 1989, the credit scheme has been replicated by the government and by non-governmental organisations in some parts of the country. For a brief discussion of the replication of the scheme in the Philippines, see Llanto et al. (1993) and Mask (1995). See also footnote 110.

themselves of formal credit. The majority reported that instead they received dole-outs from their children and grandchildren.

From the foregoing discussion, it may be concluded that people from *Barangay* San Juan have less command over credit resources than the people of *Barangay* Nangalisan. The villagers would not travel to the capital town of Masbate to secure a loan from any of its eight banking institutions because of several reasons. Firstly, they lacked information on what was required to secure a loan. Most of them do not understand the forms to be filled out and contracts to be signed. (This may be traced to the comparatively low level of average literacy and level of formal education the FGD participants in *Barangay* San Juan had.) Also, the majority do not have land, which is the usual collateral required by the banks. Moreover, since they rely on rainfed farming, their incomes are low and unstable and thus the farmers expect that there is a low possibility that the banks will lend to them because of the high lending risks. At the same time, another problem faced by the village people is the high transport costs to the town centre where the credit institutions are located. They said that the fare of 40 pesos (1.0 US dollar) per person two-ways plus extra charge for baggage was too high for them[105]. Moreover, the local roads are rough and accidents were frequent.

Giving poor people ready access to credit may therefore be desirable primarily to improve their liquidity position and therefore allow them to live beyond subsistence during poor times. However, there is a

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105 This finding is consistent with the results of a study by Abiad et al. (1988: 35) using cross-section data from six provinces in the Philippines. The study revealed that distance from the bank, among other factors, was considered important by borrowers when they decided to apply for a loan.

need to think about a credit scheme to ensure that loans are repaid. Despite the many advantages that the rural people could derive from having credit facilities, immediately setting up a loan facility in *Barangay* San Juan may not be feasible given its existing economic and social conditions. Designing a credit facility in villages similar to *Barangay* San Juan should be part of an integrated and complementary package of interventions which would also address not only the need for credit but also related concerns such as improving the level of infrastructure in the area. This recommendation is consistent with an earlier finding by Collado (1975: 179) and the World Bank (1996: 16-7) that for credit to be functional it must be simultaneously combined with technical assistance, adequate market support (such as roads and transport), post harvest facilities (for storage, drying and milling), as well as price supports.

4.3.4 On forest resources

As shown earlier in Table 3, the majority of the people in *Barangay* San Juan rely more on the forests for their energy needs than those in *Barangay* Nangalisan. The difference may reflect, among others, the comparatively lower levels of income and formal education and the non-existence of formal credit markets in San Juan (than in Nangalisan). Also the people rely on non-electric sources of energy since *Barangay* San Juan is located in an island province and it is possible that due to scale economies of producing electricity, the cost of providing this utility may far exceed the low level of demand by rural households for this utility.

Since most of the people in *Barangay* San Juan do not have sufficient money to purchase commercial forms of fuel, such as liquefied

petroleum gas, they gather fuelwood from the forest[106]. Also, since the people of San Juan have comparatively lower levels of education, it may be that they appreciate less the importance of protecting the forests themselves. It is also possible that the forests, as like other common property resources, were used as substitutes for loans in the absence of well-functioning credit markets as a resource for generating income (Baland and Platteau 1996: 172-3)[107].

This is not to say that in *Barangay* Nangalisan cutting and burning of trees do not occur. However, people replace these trees by replanting. Moreover, the timberland in *Barangay* Nangalisan is part of the national government's watershed area in the Cordillera Administrative Region. As a watershed area, no form of production is allowed by the government (Department of Environment and Natural Resources 1990: 353). Also, the presence of alternative energy resources such as electricity and liquefied petroleum gas and other income-generating activities took some pressure off the forests of *Barangay* Nangalisan. Thus, in marked contrast to most of the rural villages in the Philippines, *Barangay* Nangalisan was able to preserve a substantial portion of its forests.

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106 This does not mean, however, that collection of fuelwood by itself has led to deforestation in the village. The provincial master plan attributes the zero forest cover of Masbate to 'rampant illegal logging in the past' (Development Partners Inc. 1996: 4). At the national level, the government, citing the results of studies conducted by Meyer in 1984 and the FAO in 1988, points out that the major cause of destruction and degradation of the rainforest in the Philippines is subsistence farming (DENR 1990: 168). Kummer (1992: 66), on the other hand, in a study of post-war deforestation in the Philippines, states that it appears that logging (legal and illegal) and the expansion of agriculture are the primary causes of loss of forest cover in the country.

107 Apart from imperfections in the credit market, Baland and Platteau (1996: 167-72) pointed out that common property resources may also have a significant role in rural markets that have imperfect labour and insurance markets. Also, see Dasgupta and Mäler (1995: 2381).

However, in the absence of effective monitoring by the government and the lack of security of tenure (people in the village hold tax declarations instead of certificates of land ownership), it is possible that the forest will be depleted over time. People from neighbouring villages were in fact observed to travel to *Barangay* Nangalisan to cut trees for making furniture and wooden handicrafts without being apprehended by local authorities. In the Benguet uplands, deforestation is considered a serious problem arising from greater population pressure and illegal timber operations (Russell 1989: 5).

The experience of *Barangay* San Juan in conserving their forest resources is completely different from that of *Barangay* Nangalisan. In *Barangay* San Juan, first-growth forest trees were cut in the early 1960s to build houses. The senior members of the community who participated in the FGDs reported that they used to have a forest guard during that time. However, the forest guard allowed people from the lowlands to cut trees or adopt slash-and-burn agriculture. The village elders said it was known to the people in the village that the forest guard received money and wild animals in exchange for permission to use forest resources. When only a few trees remained, the forest guard left the village. An inventory conducted by the Department of Environment and Natural Resources (DENR) in 1984 revealed that 151,000 hectares classified as forest land in the province of Masbate had no forest cover (Provincial Government of Masbate 1991: 39). Denudation of the forests, in turn, had contributed to soil erosion and the shortage of water in the province (Development Partners, Inc. 1996). In 1994, the DENR started its reforestation program by entering into forest stewardship agreements with the local people. According to the municipal development officer of Mandaon, a total area of 360 hectares in *Barangay* San Juan is

expected to be reforested under the Integrated Social Forestry Program (ISFP). Under the ISFP, the community led by the village council manages a portion of the forest land in the village. The council allocates to a member of the community a minimum area of five hectares of forest land to plant trees on. In exchange for taking care of the forest land, the community member may use 20 per cent of the area for planting fruit trees, the produce of which they could consume or sell in the market. However, in early 1997 the farmer-beneficiaries of the ISFP were forced to vacate their forest lots by cattle ranchers and some have already waived their rights in favour of the latter (personal communication of the provincial environmental and natural resources officer, Mandaon, Masbate, January 1997). While the cattle ranchers do not possess any legal rights to the land since this is public land, the DENR seems to be helpless in evicting the cattle ranchers (and their wards) because the ranchers are part of a politically strong and influential group in the community.

The interaction between the different members of the community and the government in managing the forests of San Juan as described in the preceding paragraph may be viewed as a game theoretic exercise. The classic 'prisoners' dilemma' game[108], however, may not be applicable to what occurred in *Barangay* San Juan. This is mainly because the use of common property resources such as the forests in *Barangay* San Juan involved more than two agents and are not a one-shot game (that is the interaction between and among the players does not end with one round of activity). Also, these interactions may not be easily isolated from the other economic, social and political activities at

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108 For a description of the classic prisoners' dilemma game, see Varian (1992: 261-2).

Barangay San Juan.[109] Thus the single-shot prisoners' dilemma game may not adequately capture the situation in rural villages similar to that of *Barangay* San Juan. What may be more applicable is a game where there is no co-operation between and among agents not because of the lack of communication but due to the absence of social and political sanctions that can be brought against the comparatively rich people and politically well-connected (that is the ranch-owners). The interests of this group, therefore, prevails over the rest of the community.

While the communities seem unable to preserve their forests, especially *Barangay* San Juan, the results of the focus group discussions revealed that the people from *Barangays* Nangalisan and San Juan were in fact aware of the importance of the forests. The FGD participants said that they get water, fuelwood, lumber, fruits and plants from the forests. All the participants were of the opinion that there are advantages to protecting the forests. If they cannot be protected at the present time (1997), the FGD participants said that the condition of the forests will be serious in the next five years (2002) because the air will be warmer and there will be no more water, wild animals and plants. Some of the FGD participants said that when the forests are depleted, the village will not be protected from natural calamities, such as typhoons. Other participants said that when there are no trees, floods will occur and the soil, which is their main source of livelihood, will lose its vegetation. As a consequence of forest depletion, the members of the community predict that there will be hunger and people may die.

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109 In small groups or communities, interactions on resource management are usually linked with other sectors in which its members interact. See Baland and Platteau (1996: 76) on this point.

Interestingly, in contrast to the belief of FGD participants in *Barangay* Nangalisan that it is the community's responsibility to avoid the depletion of forest resources, half of the fathers and a majority of the mothers in *Barangay* San Juan who participated in the focus group discussions believe that it is the role of the government to protect the forests. This complacent attitude may also have contributed to the denudation of the forests in *Barangay* San Juan.

4.4 Public Policy and Methodology

4.4.1 Public policy implications

As indicated earlier, it is understandable that parents in absolutely well-being poor and income poor households with little or no access to credit markets will give sole priority to the immediate survival of their families. They have few, if any, funds to expend on the formal education of their children. In addition, the expected benefits derived from any private investments these parents make in the education of their children are likely to be discounted comparatively heavily since these parents almost certainly are comparatively risk averse especially given the depletion of forest resources. This situation will discourage even further investment in the education of children in absolutely poor communities.

It follows that one way to encourage income-poor parents in developing countries to invest more in the education of their children is to increase the level of access that these parents have to the formal credit market system. This greater access to the formal credit market will allow these households to be in a better position to mitigate, probably *ex post*, the variability of income streams. This consequence, along with the increased availability of credit presumably will also result in parents

investing more in the education of their children. A similar set of observations has been made by Jacoby and Skoufias (1997: 331), although they arrived at this conclusion by a route quite different to that taken here. (The Jacoby-Skoufias study will be returned to in the next sub-section.)

Exactly how this reform of the credit system should be implemented, without there being a wastage of public funds, is a matter briefly discussed in the accompanying footnote.[110] What is emphasised here, however, is that increasing the level of access to the formal credit market for comparatively poor households implies that personal income inequality is being reduced in the community concerned, albeit in a particular way. This observation becomes pertinent once it is noted that Perotti (1996: 179ff) provides evidence in an econometric study based on cross-country data that the level of enrolment in secondary education in a community increases with a reduction in the level of inequality in the distribution of personal incomes in this community - that is after allowing for a range of other relevant factors. Hence the relevant regression results presented by Perotti are consistent with the line of argument developed earlier - an argument based on the information derived from the baseline surveys and FGDs held in the two Filipino villages of interest here.

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110 The provision of subsidised credit, without stringent monitoring of the repayment of the loans provided, is likely to lead to a high level of defaulting of loans. Thus, to ensure that default rates are kept comparatively low, systems need to be in place for the careful supervision of all loans provided. It may also be required that a system of penalties is imposed on those who default on the loans they are provided with. Such system may take the form of lending to a single member of a group (of say five members) of potential recipients. Should any member default, then no other member of the group will receive a loan in the future. While the Grameen Bank, for instance, threatens to employ this technique to induce the repayment of loans, this threat of imposing this type of group penalty is rarely imposed. Rather, to reduce the risk of defaulting, loans are carefully supervised by the Bank's staff to determine that those receiving loans have the capacity to repay them on time and in full. On this matter see Jain (1996).

A further inference that can be drawn from the information reported earlier is that any additional public investment in primary and secondary school education in poor villages in the Philippines (and probably elsewhere) should be combined with complementary public expenditures directed at alleviating the dearth of infrastructure available to these villages. To explain, earlier it was indicated that the relative dearth of infrastructure in *Barangay* San Juan probably contributed to reducing the benefits to be derived from investments in education in that *barangay*. Expressed differently, any improvement in the infrastructure (such as roads, irrigation, electricity supply and health care facilities) made available to this *barangay* almost certainly would raise the private and social benefits to be derived from any public investment in education. This would seem to be especially so in a country where, according to the World Bank (1996: 16-7) , there is a relative dearth of basic infrastructure compared to that found in comparable countries. On the other hand, the provision of higher levels of formal education also will tend to increase the level of benefits derived from the investments in irrigation, community reforestation programs, roads and other infrastructure. What is being suggested here, therefore, is that there are complementary effects, or synergisms, that operate between the public and private investments in education and investments in other types of infrastructure in rural Philippines.[111] This in turn implies that literacy-enhancing programs and subsidies for the provision of basic education

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111 Albeit based upon information for a quite different and particular context (to be found in rural India in 1961 - 81), Foster and Rozenzweig (1996: 951) came to a similar conclusion. In this instance only two pieces of infrastructure were considered - the provision of primary school education and a new agricultural technology (associated with high yielding varieties of food grains). They established, not surprisingly, that the return on investing in any one of these classes of infrastructure was dependent on how much was invested in the other type of infrastructure.

are necessary, but definitely not sufficient, for raising, comparatively rapidly, the level of well-being of people in poor villages in rural Philippines. For such a growth in well-being to take place what is required is a suitably balanced package of appropriate government measures - not just some elements of such a package. This recommendation is also along the lines of a remark made by Professor Solita Monsod of the University of the Philippines School of Economics that the Estrada Administration should intensify its efforts to improve access by the poor to resources such as 'credit, education, that includes asset redistribution (and) export encouragement of the labo[u]r-intensive kind' (Richer families earned more in 1997, says NSO 1998: 7).

4.4.2 An aside on methodology

To conclude this discussion attention returns to a matter touched upon in the introduction; namely, the apparent comparative advantage of the methodology employed in this chapter. To demonstrate this advantage first it is noted that a central conclusion arrived at here is similar to that to be found in Jacoby and Skoufias (1997: 331) where they state that 'credit market constraints ... do play a role in the human capital investment decisions of both large and small farm households, though the evidence is less compelling for the former group'.

The route Jacoby and Skoufias took in arriving at this conclusion was based upon constructing a formal economic model of school attendance in a community subject to the constraint that households have limited access to a formal credit market to assist with mitigating comparatively unstable income streams. The severity of this constraint was made dependent upon the size of the income farming households

receive. This model was then tested by drawing inferences from econometric estimates of coefficients in equations meant to represent the formal economic model. Most important of all, the data set used in this testing was drawn from a rather limited sample - that for two villages in South India. It also seems reasonable to assert that this data set was not well suited for the testing of the thesis considered by Jacoby and Skoufias.

In contrast, the relevant argument developed in the previous discussion was based upon information generated by baseline surveys and answers to questions posed in FGDs that were explicitly concerned with determining (a) if there were links between the completeness of credit markets and private investments in formal education and, if these links existed, (b) the qualitative importance of these links. In the attempt to ensure that useful information was generated in this way, only households that possessed a diverse range of relevant characteristics were interviewed. Thus relevant and useful comparison could be made based on the information generated by the FGDs and the baseline surveys without the need to draw comparatively tenuous inferences from this information by way of applying appropriate statistical techniques.

The results derived from such an approach suggest that a case can be made for the greater, but judicious, use of focus group discussions in developing communities to obtain deeper insights into how these communities really function, and how various factors constrain their development. These insights, in turn, should provide a firmer foundation upon which to determine the design of an appropriate and effective public policy. That said, the use of relevant and judicious focus group discussions could be a comparatively costly way of

generating relevant information. Nevertheless, these costs may be much less than the benefits, discounted at the appropriate rate, derived from making effective use of this information.

Part III

Consequences of Poverty in the Philippines

Chapter 5

Demographic and Health Consequences of Rural Poverty - A Study at the Macro Level

5.1 Introduction

The previous part of this thesis attempted to determine the possible causes of poverty in the Philippines. The discussion in this part of the thesis turns to determining some of the consequences for Filipino society that flow from the level of poverty to be found in that society. In this chapter attention concentrates on determining the influence of the level of poverty and other factors on demographic variables and measures of the health status for certain groups in the community. In carrying out this study use is made of provincial data.

The reason for considering this general issue is that the level of poverty may influence the level of demand for children, health status to be found in the community and the mobility of individuals in the Filipino community. Changes in the level of this latter of group of variables may, in turn, influence the rate of growth of real gross national product per capita (the rate of economic growth for short). To explain, suppose, for example, a rise in the total fertility rate results in raising the rate of growth of population. This latter change may, in turn, well impede the rate of economic growth for the Philippines. (There is some evidence to support this conjecture to be found in Perotti (1996). Perotti only used cross-

country data, however.) If this is so, then a reduction in the level of poverty should be part of any attempt to curb the rate of growth of population and, thereby, increase the rate of growth of the Philippine economy.[112] Similarly, raising the health status of the community should assist in increasing the rate of economic growth, as should increasing the mobility of labour between employment opportunities in the Philippines. Again, if a reduction in the level of poverty assists in raising the health status, and level of labour mobility for members of this community, then a reduction in the level of poverty again should assist in raising the rate of economic growth in the Philippines.

The author is not aware of any studies which have looked into the possible influence of poverty on demographic and health variables using provincial data in the Philippines. Most of the studies either used regional data or looked at the influence of income and other economic and social indicators on only one or two demographic or health variables. This chapter studies the influence of rural poverty on demographic and health conditions in the Philippines using a more disaggregated data set.

5.2 Objectives of the study

This chapter will attempt to look at the effects of rural poverty on fertility, infant and child mortality, morbidity (resulting from water-borne diseases) and rural to urban migration making use of relevant data for the Philippines. The latter set of variables was selected because it may

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112 However, the right sort of economic growth - namely, growth that results from increasing the level of education in the community - will also contribute towards decreasing the rate of economic growth. This topic is discussed in Martina (1996).

be considered as containing basic indicators of demographic and health conditions. However, the results of this chapter should be treated with caution because causality may be in the reverse direction as well (that is, these variables may, in turn, influence rural poverty) and thus simultaneous equation bias may occur.

More specifically, the chapter aims to address the following questions:

a) What is the effect of rural poverty on infant mortality rates? Do rising levels of rural poverty reduce or increase infant mortality rates? Do rising infant mortality rates, in turn, have a positive or negative effect on fertility rates? What is the effect of rural poverty on child mortality rates?

b) What is the effect of rural poverty on morbidity resulting from water-borne diseases? Do rising levels of rural poverty reduce or increase morbidity rates?

c) What is the effect of rural poverty on migration? Does a rising level of rural poverty encourage people to leave the area or, instead, does rural-urban migration decrease?

5.3 Hypotheses testing

The following hypotheses shall be tested by making use of data for the Philippines:

a) All else being equal, rural income-only poverty has a direct positive influence on infant and child mortality. Low incomes mean a reduced ability for expecting mothers to improve their nutritional intake thereby affecting the health condition of their babies, and reduced ability for parents to provide adequate nutrition for their growing children. If well-being poverty is also considered, so that consideration is also given to the access income-poor households have to a range of relevant public goods, then the lack of public goods such as basic education, potable water and sanitation also will increase infant and child mortality rates in poor households. This is so since these households will be more exposed to water-borne diseases, which are a major cause of infant and child deaths.

b) All else being equal, rural poverty has both an indirect positive and negative relationship with fertility. The indirect positive relationship is through its effect on infant mortality rates. Rural poverty will increase infant mortality rates which, in turn, will increase fertility rates. Couples who lose an infant are more likely to replace them with another. The indirect negative relationship may arise from the lack of material assets owned by the poor. This is since assets such as land can be used by parents as a 'bargaining tool' in negotiations with their children to take care of them in their old age. Since they have fewer assets, such as land or savings to give to their children as inheritance, there is less incentive for poor couples to have more children.

c) All else being equal, rural poverty has an indirect positive relationship with morbidity resulting from water-borne diseases. Low incomes mean a reduced ability to improve nutritional intake which, in turn, may result in higher susceptibility to diseases. Again, if well-being

poverty is taken into account, the lack of potable water and sanitation facilities as well as basic education increase morbidity rates resulting from water-borne diseases such as diarrhoea, cholera, bacillary dysentery, typhoid fever, paratyphoid fever and viral hepatitis.

d) All else being equal, rural poverty has both a direct negative and positive relationship with net migration (that is, in-migration less out-migration). Poor people are discouraged from leaving their birthplace because of the high cost of migrating (which includes financial and psychic costs) and because they are more averse to risk than persons who are better off. Their risk-averseness is caused by the high economic levels of uncertainty arising from factors such as unstable incomes and instability resulting from the lack of education, accessible credit and social security systems. At low income levels, however, poor people may be risk-loving; they migrate to other places despite the risks and the costs of moving, as they are economically desperate.

5.4 Some comments on the data set

Prior to discussing the regression models, a brief description of the data set used in this chapter is presented in this section. Table 1 presents a summary of the data used in these models. A definition of the variables is contained in the appendix (see Annex 10). Outliers in the data set (which are determined by the use of a scatter plot) that were expected to distort the results of regression were deleted. Removal of three outliers in the data set, consisting of two observations in net migration and one observation in morbidity from water-borne diseases, resulted in a slight decrease in the total number of observations from 73

to 71 in the case of the net migration model and to 72 observations in the case of the morbidity model.

Correlation between some of the independent variables may be detected using the correlation matrix (see Table 2 in Annex 11). For instance, ELEC was found highly correlated with POT, SAN, NAGL, DEPR, URB, FLIT, ACADEG and DIST; NAGL with URB and ACADEG; POPDEN with URB; and LANFO with ILLIT. This information indicates

Table 1. Summary Statistics

Variable	Mean	Standard deviation	Minimum	Maximum
INFMORT	58.137	8.447	40.66	78.11
CMORT	26.841	6.546	14.62	44.15
FERT	3.488	0.317	2.8	4.1
MWB	2030.082	3308.25	34	28463
NMIG	754.417	6438.816	-6.117	55014
POVI	48.481	14.410	4.900	74.900
FAMEXPH	1.804	0.826	0.4	5
MAL	18.687	5.231	5.22	33.47
AGEFEM	20.666	0.712	19.4	22.8
FLIT	71.529	10.933	36.300	90.800
ILLIT	8.679	7.109	1.400	40.200
ACADEG	10.099	3.194	3.100	20.800
ELEC	42.842	20.620	9.400	90.900
POT	58.484	17.935	13.500	90.300
SAN	50.258	19.798	8.700	93.300
NAGL	43.714	14.017	12.000	77.300
DEPR	80.422	6.739	66.700	94.700
HSIZ	5.349	0.227	4.800	6.100
URB	35.190	17.612	9.000	95.200
LANFO	0.478	0.127	0.216	0.831
IRRIG	0.483	0.268	0.020	1.000
POPDEN	205.600	172.825	23.03	895.1
DIST	0.904	0.836	0	2
ROADEN	1.464	0.683	0.525	4.941
PAVRODEN	0.194	0.147	0.021	0.640
D	6.836	3.659	1.000	13.000

that multicollinearity may be present when attempting to estimate regression equations (5.1) to (5.5). Hence, it is not possible to measure the separate influences of the correlated variables on the dependent

variable. Thus, a two-stage estimation procedure was employed and will be discussed in the next section.

5.5. Regression models

To determine the relationship between rural poverty and the demographic and health variables, the following five models were considered:

$$\text{logINFMORT}_i = \beta_0 + \beta_1\text{POVI} + \beta_2\text{FAMEXPH} + \beta_3\text{ILLIT} + \beta_4\text{MAL} + \beta_5\text{POT} + \beta_6\text{SAN} + \beta_7\text{DIST} \quad (5.1)$$

where:

- logINFMORT_i = Logarithm of Infant Mortality Rate; the number per 1,000 live births that did not reach the age of one (1) in 1991 per province.
- POVI = poverty incidence in 1991 per province
- FAMEXPH = average family expenditures on health in 1991 per province
- ILLIT = illiteracy rate in 1990 per province
- MAL = malnutrition rate in 1990 per province
- POT[113] =proportion of households with potable water in 1990 per province
- SAN[114] =proportion of households with sanitary toilet facilities in 1990 per province
- DIST =dummy variable for distance. The variable takes a value of 0 if the province is located in Luzon (except for Mindoro and Palawan which takes a value of 1 because of their relatively longer distance from MetroManila as compared to the other provinces within the Luzon island); 1 if in the Visayas; and 2 if in Mindanao.

$$\text{logCMORT}_i = \beta_0 + \beta_1\text{POVI} + \beta_2\text{FAMEXPH} + \beta_3\text{POT} + \beta_4\text{SAN} + \beta_5\text{ILLIT} + \beta_6\text{MAL} + \beta_7\text{DIST} \quad (5.2)$$

where:

- logCMORT_i = logarithm of Child Mortality Rate; the number per 1,000 children that did not reach the age of five (5) in 1991 per province.
- POVI = poverty incidence in 1991 per province

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113 Potable source of water supply refers to water suitable for drinking from community water systems and tubed/piped deep wells (NSO 1993: 2).

114 A sanitary toilet facility refers to water-carriage system of excreta disposal which includes flush/water sealed, sewer/septic tank and other depository (NSO 1993: 2).

FAMEXPH = average family expenditures on health in 1991 per province
POT = proportion of households with potable water in 1990 per province
SAN = proportion of households with sanitary toilet facilities in 1990 per province
ILLIT = illiteracy rate in 1990 per province
MAL = malnutrition rate in 1990 per province
DIST = dummy variable for distance. The variable takes a value of 0 if the province is located in Luzon (except for Mindoro and Palawan which takes a value of 1 because of their relatively longer distance from MetroManila as compared to the other provinces within the Luzon island); 1 if in the Visayas; and 2 if in Mindanao.

$$FERT_i = \beta_0 + \beta_1 POVI_i + \beta_2 logINFMORT + \beta_3 AGEFEM + \beta_4 FEMLIT + \beta_5 MALIT + \beta_6 URB + \beta_7 DIST \quad (5.3)$$

where:

FERT = Fertility rates in 1990 per province
$POVI_i$ = Poverty incidence in 1991 per province
logINFMORT = number per 1000 live births that did not reach the age of one (1) in 1991 per province (in log form)
AGEFEM = average age at marriage of female population in 1990 per province
FEMLIT = Female basic literacy rate in 1991 per province
MALIT = Male basic literacy rate in 1991 per province
URB = proportion of households living in an urbanised area in 1990 per province
DIST =dummy variable for distance. The variable takes a value of 0 if the province is located in Luzon (except for Mindoro and Palawan which takes a value of 1 because of their relatively longer distance from MetroManila as compared to the other provinces within the Luzon island); 1 if in the Visayas; and 2 if in Mindanao.

$$logMWB_i = \beta_0 + \beta_1 POVI_i + \beta_2 POT + \beta_3 SAN + \beta_4 MAL + \beta_4 ILLIT + \beta_5 DIST \quad (5.4)$$

where:

$LogMWB_i$[115] = Logarithm of morbidity resulting from water-borne diseases per 100,000 population in 1991 per province
$POVI_i$ = poverty incidence in 1991 per province
POT =proportion of households with potable water in 1990 per province

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115 Data on morbidity resulting from water-borne diseases per province include recorded incidences of diarrhoea, typhoid and paratyphoid fever, and other salmonella infections (DOH 1991).

SAN =proportion of households with sanitary toilet facilities in 1990 per province
MAL = malnutrition rate in 1990 per province
ILLIT = illiteracy rate in 1990 per province
DIST =dummy variable for distance. The variable takes a value of 0 if the province is located in Luzon (except for Mindoro and Palawan which takes a value of 1 because of their relatively longer distance from MetroManila as compared to the other provinces within the Luzon island); 1 if in the Visayas; and 2 if in Mindanao.

$$NMIG_i = \beta_0 + \beta_1 POVI_i + \beta_2 POPDEN + \beta_3 URB + \beta_4 ELEC + \beta_5 POT + \beta_6 SAN + \beta_7 LANFO + \beta_8 FLIT + \beta_8 ROADEN + \beta_9 DIST \quad (5.5)$$

where:

$NMIG_i$ = Net Migration Rates; the proportion of net migrants (in-migrants less out-migrants) to total population in 1991 per province.
$POVI_i$ = poverty incidence in 1991 per province
POPDEN = population density; population per square kilometre in 1990 per province
URB = proportion of households living in an urbanised area in 1990 per province
ELEC = proportion of households with electricity in 1990 per province
POT = proportion of households with potable water in 1990 per province
SAN = proportion of households with sanitary toilet facilities in 1990 per province
LANFO = proportion of total area of farms in the province in 1991 which were fully-owned and operated and not tenanted
FLIT = functional literacy rate in 1989 per province
ROADEN = road density; kilometres of road divided by the population per province in 1991
DIST =dummy variable for distance. The variable takes a value of 0 if the province is located in Luzon (except for Mindoro and Palawan which takes a value of 1 because of their relatively longer distance from MetroManila as compared to the other provinces within the Luzon island); 1 if in the Visayas; and 2 if in Mindanao.

Since the objective of the study is to determine if there is a statistically significant relationship between income-poverty (using poverty incidence as the dependent variable) as well as non-income measures of poverty (using health and sanitation facilities and education as explanatory variables) and five different dependent variables, the above statistical models were made as simple as possible, without,

however, sacrificing the explanatory power of the model as a whole and other independent variables contained therein. The idea is to capture the effect of income and well-being poverty variables on fertility rates, infant and child mortality, morbidity and net migration. The independent variables, other than poverty incidence, were based on different models/studies made of fertility, infant mortality, child mortality, morbidity from water-borne diseases and net migration.

I now consider each of the regression models in turn.

a) The regression model represented by equation (5.1) is based on the Anand and Ravallion model (1993). Using cross-country data, Anand and Ravallion attempted to determine the separate influences of real Gross Domestic Product (GDP) per capita, real health subsidy expenditure per capita and the level of the headcount poverty on the infant mortality rate. Their findings indicated that the latter two variables had a statistically significant influence on the infant mortality rate - a rise in the health expenditure, and a fall in the headcount measure of poverty reduced the infant mortality rate. However, an increase in real Gross Domestic Product (GDP) per capita had no influence on the infant mortality rate. In the present study, cross-section data for the Philippines was used to test Model 1. In the present study the proportion of family expenditure spent on health (FAMEXPH) per province was used to measure private expenditures on health care. In addition, basic infrastructure (POT and SAN), health (MAL), education (ILLIT) and distance (DIST) variables were included in the regression model.

All else being equal, $POVI_i$ is hypothesised to have a positive influence on $logINFMORT_i$. Less income may mean fewer chances of

providing an infant as well as a pregnant woman with adequate nutrition and health care.

ILLIT and MAL are expected to have a positive influence on $logINFMORT_i$, while FAMEXPH, POT and SAN are expected to have a negative effect on the same variable. A less literate or less educated person, especially in the case of females, is expected to have a lower appreciation of the importance of adequate nutrition and hygienic practices than one who is literate or more educated (Caldwell and MacDonald 1982). The lack of proper and adequate nutrition is also expected to increase infant deaths. Moreover, assuming all others are equal, it is expected that the higher the proportion of the household budget spent on medical care and the better the access to potable and sanitary toilet facilities, the lower is the infant mortality rate.

It is also hypothesised that the further away a person lives from Luzon (the main island where the nation's major metropolitan area is located), the lower the quality of medical care facilities and thus the higher is the infant mortality rate. DIST is therefore expected to have a positive effect on $logINFMORT_i$. Given the typology, or the geography of the Philippines, however, it is not possible to determine accurately the distance from a province outside of Luzon (particularly the island provinces) to MetroManila. Thus, dummy variables were used in the regression model.

Other indicators which aim to capture the effect of government health programs on $logINFMORT_i$, such as the number of government hospitals, maternity clinics or physicians per capita (Frankenberg 1995) or government expenditures on health per person, were not included in

the model due to the absence of provincial data. Data on the quality of health facilities and services at the provincial level likewise are unavailable. The lack of data on possible variables which may have a significant relationship to infant mortality rates may therefore result in low adjusted coefficients of determination.

b) The regression model represented by equation (5.2) is based on a various studies which looked into the possible relationship between some social variables (based on the availability of data) and child mortality. While the author supports the basic premise of Mosley and Chen (1984: 25) in their analytical framework for the study of child survival in developing countries that 'all social and economic determinants of child mortality necessarily operate through a common set of biological mechanisms, or proximate determinants[116], to exert an impact on mortality', this chapter follows traditional social science research on child mortality which studies the association between economic and social indicators and child mortality rates. This approach is taken because, as mentioned in the introduction to this section, the objective of this chapter is to look at the influence of poverty incidence on specific demographic as well as heath variables.

Similar to the previous regression model, $POVI_i$ is likewise hypothesised to be positively related to $logCMORT_i$. Less income may also mean fewer chances for a household of providing a child with adequate nutrition and health care.

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116 Mosley and Chen (1984: 27) categorised the proximate determinants of child survival into five: maternal factors (age, parity and birth interval); environmental contamination (air, food/water/fingers, skin/soil/inanimate objects, insect vectors), nutrient deficiency (calories, protein, micronutrients (that is, vitamins and minerals), injury (accidental and intentional) and personal illness control (personal preventive measures and medical treatment).

ILLIT, MAL and DIST are also expected to have a positive influence on $logCMORT_i$. Similar to the previous model, a less literate or educated person is expected to appreciate less the importance of adequate nutrition and hygienic practices than one who is literate or more educated (Caldwell and MacDonald 1982). On the other hand, due to its relationship with infectious disease, mild-to-moderate malnutrition was found to increase the chances of a child dying before he or she reaches the age of five (Martorell and Ho 1984, Pelletier et al. 1993, 1994 and 1995 and Pelletier 1994). Similar to the infant mortality model, the further away a province is located from Luzon, the higher is the child mortality rate as explained earlier.

FAMEXPH, POT and SAN are hypothesised to have a negative effect on $logCMORT_i$. Assuming all others things are equal, the higher the proportion of the household budget spent on health care, particularly preventive as opposed to curative health care, the lower is the predicted child mortality rate. Also, having clean and safe water for drinking and the preparation of food as well as sanitary toilet facilities, among others, tend to reduce exposure to disease (Mosley and Chen 1984: 36-7). Similarly, other indicators which aim to capture the effect of government health programs on $CMORT_i$, such as the number of government hospitals, maternity clinics or physicians per capita or government expenditures on health per person or the quality of health facilities and services at the provincial level, were not included in the model due to the absence of provincial data. Similar to the infant mortality model, the lack of data on possible variables which may have a significant relationship to child mortality rates may therefore result in a low coefficient of determination.

c) The regression model set out in equation (5.3) is based on studies made on the variables which may affect fertility rates. Apart from average age at marriage of female population which is a proximate[117] or direct determinant of fertility, the model will look at the possible influence of socioeconomic factors on fertility rates. I recognise, however, that these economic and social variables may have an indirect rather than a direct effect on fertility rates.

The model, therefore, tests various theories set out in the relevant literature that concentrates on studying the relationship between social and economic indicators and fertility rates. For instance, on the relationship between poverty incidence and fertility rates, Dasgupta (1993) hypothesised that, holding all else being equal, the poorer an area is, the higher is the demand for children. More particularly, in developing countries the poor tend to have more children than the non-poor (Birdsall and Griffin 1993). Dasgupta, Folke and Mäler (1994) also claimed that rapid population growth, arising from high fertility rates, is a result of poverty as well as institutional failures.

Urbanisation is expected to have an inverse relationship with fertility rates. Since the expected minimum income necessary to raise a child is larger in the urban areas, the more urbanised a province is, the lower is the fertility rate. Urbanisation is also associated with comparatively higher levels of average income, higher levels of

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117 Davis and Blake (1956) identified 11 intermediate variables which have a direct effect on fertility. Two decades later, Bongaarts (1978) trimmed the number of these variables into eight to allow for quantification. These variables are as follows: proportions of women married or in sexual unions; patterns of sexual activity, breastfeeding and lactational amenorrhoea, contraception (including sterilisation), induced abortion, foetal loss, natural infertility and pathological infertility.

education, formation of nuclear instead of extended families, better social services (such as education, health and family planning) and better infrastructure in contrast to that found in rural areas. These factors may contribute to a higher fertility rate in rural areas (Murdoch 1980: 48). Relatedly, distance is expected to have a positive influence on fertility rates. The further away a province is located from Luzon, the less urbanised it is, and the higher is the demand for children.

Infant mortality rates and fertility rates are expected to be positively related to one another (Birdsall and Griffin 1993). The higher the infant deaths, the more is the demand for children as replacement of the children lost. It is possible, however, that there is a time lag between the reduction in infant mortality rates and the decline in fertility rates. For instance, Murdoch (1980: 44) cites evidence from a study of infant mortality rates and fertility rates conducted by the World Health Office in 53 countries in Asia, Africa and Latin America between 1945 and 1970, that indicates that the average time lag was about ten years. However, due to the absence of data on infant mortality rates in 1980 per province, data in 1990 were used instead.

Assuming all others are equal, the higher is the average age at marriage of the female population in the province, the lower is the fertility rate. It is expected that married females are more likely to have children than those who are single.

Increases in the level of functional literacy are expected to reduce the demand for children. A more literate person may have a greater appreciation of the importance of improving the quality of their children through better education and health care rather than increasing the

number of their children. Also, as the opportunity cost of having children goes up, the importance of the child's contribution to family income may go down. In the rural areas, couples invest in the education of children in the hope that later their children may find employment outside of agriculture.[118]

Past studies also have revealed that there is a negative relationship between female literacy rates (FEMLIT) and fertility rates (for example, Hill and King 1993 and Birdsall and Griffin 1993). More female education is expected to delay the age of marriage, increase the demand for family planning services and their effective use, make women more involved in fertility decisions, and raise the probability of having healthy and educated children (Caldwell 1986 and Birdsall and Griffin 1993). It also raises the opportunity cost of having children as a better educated woman is more likely to be in the work force earning a wage higher than that earned had this woman not received this level of education. However, due to the absence of disaggregated information on the average level of educational attainment by gender at the provincial level, literacy rates by gender were used instead.

Availability of family planning services was not included in the model as an explanatory variable as all provinces have family planning health centres and health workers. Other relevant attributes of family planning programs (such as accessibility, quality and effectiveness of

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118 A study of poor rural communities in Southern India in the early 1980s showed that parents invested in the education of their children with the expectation that the latter would find work outside of agriculture (Caldwell et al. 1982 and 1986). This behaviour was likewise observed in poor communities in rural Bangladesh (Duza and Nag 1993). Murdoch (1980) points out, however, that an exception to the inverse relationship between education and fertility may be observed in very poor societies where a few years of elementary education may have no effect on fertility rates and may even raise it.

these services which may be important in lowering birth rates) likewise were not included in the regression equation, as such data were not available.

d) The regression model represented by equation (5.4) is based on the general production function with a few modifications used by Wibowo and Tisdell (1993). In their model, morbidity arising from water-borne diseases was the dependent variable (MWB) and the percentage of the population with access to a safe water supply (POT) and to excreta disposal facilities (SAN) were the explanatory variables. A variable which is missing from this model is information on distance from the source of water supply. Nonetheless, their findings revealed that the higher the percentage of households with access to the afore-cited facilities, the lower the morbidity rates.

$POVI_i$, ILLIT and MAL were added to the Wibowo and Tisdell model. $POVI_i$ is hypothesised to have a positive effect on $logMWB_i$. The higher the incidence of poverty, illiteracy and malnutrition in the province, the higher also are the morbidity rates from water-borne diseases. Due to low incomes and illiteracy, the poor are unable to have their own potable water and sanitation facilities or at the very least, be near to where public facilities are located. It is also expected that the less literate the population of a province is, the lower will the predicted morbidity rates be. All else equal, a more literate person is believed to have a better appreciation of the importance of a clean and healthy environment. Malnutrition, on the other hand, is expected to lower a person's natural defences from getting sick (Pelletier et al. 1993, 1994 and 1995 and Pelletier 1994).

Distance is expected to have a positive effect on morbidity rates. The further away a province is located from Luzon, the less likely it will have adequate and safe water supply, sanitary disposal facilities and medical infrastructure.

e) The fifth regression model, that is represented by equation (5.5), uses a modified version of the gravity model approach to the analysis of the causes of migration - a model which 'measures the relationship between motion, mass and distance' (Schapiro 1986: 47). The model is very much applicable to the Philippines because of its geography.

Net migration (NMIG) is defined as in-migration less out-migration. Hence, if positive, then the province is an in-migration area (there are more people entering than leaving) and if negative, then net out-migration applies. Table 1 shows that the mean net migration figure across provinces in 1991 was positive. This means that, on the average, a province in the Philippines was an in-migration area during that year.

Poverty incidence ($POVI_j$) is expected to induce the poor who are risk-averse to stay in their province. Less well-off households face high levels of income risk and are more risk-averse than households who are better-off (Dasgupta 1993: 199-201 and Rosenzweig and Binswanger 1993). At very low income levels, however, a poor person tends to become risk-loving as this individual is economically desperate and will tend to migrate elsewhere to look for employment opportunities such as farm labour and factory work. Thus poverty incidence may either have a positive or negative influence on net migration.

As an area becomes more urbanised, it is more likely that people will stay in the area since urbanisation (URB) is associated with the availability of 'modern' infrastructure facilities such as hospitals and universities. Other variables that are expected to be 'pull' factors (or incentives for people to stay in a locality) are the availability of electricity (ELEC), potable water (POT), sanitary toilet facilities (SAN), land ownership (LANFO) and roads (ROADEN).

As for population density (POPDEN) and functional literacy (FLIT), it is hypothesised in the case of these variables that they are negatively related to $NMIG_i$. The reason is that migration theory suggests that areas with high population density, all else being equal, tends to push population out (Schapiro 1986). More functionally literate people, on the other hand, are assumed to be less risk-averse and may tend to leave the province to seek gainful employment opportunities in the urban or town centres.

Distance is expected to have a positive effect on $NMIG_i$. Distance has an inhibiting effect due to the monetary and psychic costs of moving from one area to another. It is hypothesised that the further away a person lives from Luzon (the main island where MetroManila, the nation's major metropolitan area is located), the less likely it is that this person will permanently leave her/his place of residence.

A variable left out in the model, however, is the incidence of crime - a variable that would capture the effect of the peace and order on the rate of migration. Thus, the higher the incidence of crime in a province, it is hypothesised, the higher the level of migration from this province. Due to the lack of relevant data, however, this hypothesis was not tested.

As mentioned earlier, some of the independent variables are correlated with each other. When run together, the variables which are highly correlated may result in biased coefficients and, in particular, some variables have estimated coefficients that are not significantly different from zero. As mentioned in Chapter 3, to remedy this multicollinearity problem one possible solution is to drop relevant variables from the regression equation (Greene 1997: 423). This most likely will cause the resulting equation being mis-specified (Greene 1997: 423). Thus rather than employ this approach of dropping certain variables, instead use was made of a two-stage least squares (2SLS) estimation procedure - a procedure discussed earlier in Chapter 3.

To explain, in each of the regression equations (5.1) to (5.5), $POVI_i$ was used as an instrumental variable. To derive this instrumental variable, first a basic regression equation was estimated with $POVI_i$ set as the dependent variable. The independent variables were variables such as SAN, LANFO and NAGL. The relevant form of this first regression equation was estimated using the Huber-White Cluster Method discussed earlier in Chapter 3 - a method based on the ordinary least squares (OLS) approach. Next, the predicted values of $POVI_i$ were used as an instrumental variable in the second stage of the estimation procedure used to estimate the five different regression equations discussed earlier (Greene 1997: 741).

5.6 Regression results and analysis

The results of regression are set out in Tables 3 to 7. Poverty incidence was found statistically significant in equations (5.1) and (5.3). The results derived for each model will be discussed in the following paragraphs.

The preferred result set out in Table 3 is that shown in regression equation number 3. Using a two-stage least squares method, $POVI_i$ was found to have a positive influence on logINFMORT at the five per cent level of significance. This means that the higher the poverty incidence in a province, the greater is the predicted infant mortality rate. Other variables that were found statistically significant were FAMEXPH and ILLIT. Family expenditures on health were found to be negatively related to infant mortality, while illiteracy had a positive influence on infant deaths at the five per cent significance level. This means that education and health are highly statistically significant in reducing infant mortality rates.

Malnutrition was likewise found to be positively related to $logINFMORT_i$ using ordinary least squares. POT was not found to have a significant influence on $logINFMORT_i$ while SAN was found statistically significant but only through its effect on $POVI_i$ as shown in Columns 2 and 3. DIST was likewise not found significant using the OLS nor 2SLS method of estimation. This may be interpreted to mean that location does not have any bearing on provincial variation in infant mortality rates.

1) Infant Mortality Model.

Table 3. Coefficient Estimates derived using the Huber-White cluster regression formula*

	Number of the regression equation				
	1	2		3	
Dependent Variable	logINFMORT	logINFMORT	POVI	logINFMORT	POVI
Estimation Method	(OLS)	(2SLS)	(OLS)	(2SLS)	(OLS)
constant	3.800 (29.00)	3.704 (25.09)	102.396 (8.68)	3.692 (24.86)	102.396 (8.68)
POVI	- 0.001 (-0.56)	0.004 (2.24)		0.005 (2.30)	
FAMEXPH	-0.023 (-1.64)	-0.053 (-2.73)		-0.057 (-2.55)	
MAL	0.012 (2.69)	0.009 (1.66)		0.009 (1.53)	
ILLIT	0.009 (4.26)	0.007 (2.66)		0.007 (2.26)	
DIST	0.035 (1.83)	0.010 (0.61)			
SAN			-0.344 (-3.33)		-0.344 (-3.33)
LANFO			-48.87 (-3.50)		-48.87 (-3.50)
NAGL			-0.303 (-3.00)		-0.303 (-3.00)
R^2	0.546	0.388	0.309	0.334	0.309
F Statistic	12.88	48.03	8.27	49.60	8.27
no. of observations	73	73	73	73	73

* All variables in brackets refer to the t-statistics corrected for heteroscedasticity using the Huber-White method. See the appendix (Annex 10) for the sources of data.

2) Child Mortality Model

Table 4. Coefficient Estimates derived using the Huber-White cluster regression formula*

	Number of the regression equation				
	1	2		3	
Dependent Variable	logCMORT	logCMORT	POVI	logCMORT	POVI
Estimation Method	(OLS)	(2SLS)	(OLS)	(2SLS)	(OLS)
constant	3.112 (12.31)	2.844 (8.68)	102.396 (8.68)	2.802 (8.74)	102.396 (8.68)
POVI	- 0.001 (-0.77)	0.006 (2.67)		0.008 (3.09)	
FAMEXPH	-0.042 (-1.91)	-0.088 (-2.79)		-0.096 (-2.67)	
MAL	0.017 (2.18)	0.014 (1.44)		0.014 (1.34)	
POT	-0.003 (-1.78)	-0.002 (-0.79)		-0.001 (-0.68)	
ILLIT	0.011 (2.39)	0.005 (1.93)		0.009 (1.68)	
DIST	0.044 (1.47)	0.009 (0.37)			
SAN			-0.344 (-3.33)		-0.344 (-3.33)
LANFO			-48.87 (-3.50)		-48.87 (-3.50)
NAGL			-0.303 (-3.00)		-0.303 (-3.00)
R^2	0.528	0.383	0.309	0.327	0.309
F Statistic	11.44	35.29	8.27	34.74	8.27
no. of observations	73	73	73	73	73

* All variables in brackets refer to the t-statistics corrected for heteroscedasticity using the Huber-White method. See the appendix (Annex 10) for the sources of data.

The preferred result set out in Table 4 is that shown in regression equation number 3. Again, using a two-stage least squares method of estimation, poverty incidence was found to have a positive incidence on child mortality rates at the five per cent level of significance. This means that the higher the poverty incidence in a province, the greater is the predicted child mortality rate.

Another variable that was found significantly related to $logCMORT_i$ was FAMEXPH. MAL and ILLIT were found to have a positive influence on child mortality rates at the five per cent significance level when ordinary least squares (OLS) is used. In the case of the results obtained for malnutrition, they are consistent with the findings of Pelletier (1994) and Pelletier et al. (1994 and 1995) in a study of 53 developing countries; namely, that malnutrition, particularly the mild-to-moderate type, has a multiplicative effect on child mortality (aged 6 to 59 months). This variable is not significant, however, in the regression equations estimated using the two-stage least squares method of estimation. The variable POT, on the other hand, was found to have a negative influence on $logCMORT_i$ at the ten per cent level of significance using OLS - but this variable also is not significant in the regression equations estimated using the two-stage least squares method of estimation. Similar to the results of regression of equation (5.1), DIST had no significant influence on $logCMORT_i$.

3) Fertility Model

Table 5. Coefficient Estimates derived using the Huber-White cluster regression formula*

	Number of the regression equation				
	1	2	3	4	
Dependent Variable	FERT	FERT	FERT	FERT	POVI
Estimation Method	(OLS)	(OLS)	(OLS)	(2SLS)	(OLS)
constant	-5.860 (-2.98)	-6.848 (-3.24)	-6.459 (-3.33)	-2.536 (-1.11)	177.562 (4.56)
POVI	0.006 (2.106)	0.007 (2.30)	0.007 (2.23)	0.010 (1.67)	
LogINFMORT	1.516 (7.13)	1.603 (5.93)	1.577 (6.72)	0.935 (2.35)	
AGEFEM	0.030 (0.47)	0.032 (0.58)	0.029 (0.51)	0.088 (1.21)	
FEMLIT	0.025 (4.56)				
MALIT		0.031 (4.23)			
FEMALIT			0.014 (4.73)		-0.540 (-3.09)
DIST	-.021 (-0.36)	0.001 (0.014)	-0.010 (-0.18)	-0.078 (-0.91)	
LANFO					-48.873 (2.84)
IRRIG					-14.640 (-2.19)
R^2	0.443	0.411	0.274	0.179	0.236
F Statistic	12.48	9.75	9.92	3.31	5.54
no. of observations	73	73	73	73	73

* All variables in brackets refer to the t-statistics corrected for heteroscedasticity using the Huber-White method. See the appendix (Annex 10) for sources of data.

Poverty incidence was found to have a positive effect on fertility rates as shown in Columns 1 to 3. As hypothesised, LogINFMORT was likewise found to have a positive influence on FERT. However, AGEFEM and DIST, were found to have no significant influence on FERT. FEMLIT and MALIT were found to be statistically significant as shown in Columns 1 and 2, respectively. However, the coefficients of these variables had the opposite sign to what intuition may suggest. When FEMLIT and MALIT are combined into one variable (FEMALIT), the new variable remains statistically significant but still has the wrong sign.

Nevertheless, FEMALIT seems to have the expected, albeit indirect, negative influence on FERT when FEMALIT operates through the level of $POVI_i$. As can be seen in regression equation 4 in Table 5, FEMALIT has the expected negative influence on $POVI_i$, while this latter variable (when treated as an instrumental variable) has the expected positive influence on FERT (at just above the ten per cent level of significance).

4) Morbidity Model

The results of regression set out in Table 6 revealed that poverty incidence does not have a statistically significant influence on morbidity from water-borne diseases. Only one variable was found to be significantly related to $logMWB_i$ and that is MAL. The rate of malnutrition was found to have a positive influence on morbidity rates from water-borne diseases at the ten per cent significance level. This result is consistent with those to be found in the previously-cited study by Pelletier et al. (1993).

Table 6. Coefficient Estimates derived using the Huber-White cluster regression formula*

	Number of the regression equation					
	1	2	3		4	
Dependent Variable	logMWB	logMWB	logMWB	POVI	logMWB	POVI
Estimation Method	(OLS)	(OLS)	(2SLS)	(OLS)	(2SLS)	(OLS)
constant	6.477 (12.40)	6.143 (5.23)	6.578 (5.84)	69.719 (8.72)	6.765 (9.20)	102.174 (8.61)
POVI	0.002 (0.19)	0.003 (0.24)	0.007 (0.34)		0.003 (0.21)	
POT	-0.001 (-0.12)		-0.004 (-0.52)		-0.004 (-0.64)	
SAN		0.002 (0.51)				-0.344 (-3.32)
ILLIT	0.018 (0.79)	0.023 (1.09)		1.052 (2.93)		
MAL	0.028 (1.92)	0.031 (1.57)	0.025 (1.92)		0.026 (2.00)	
DIST	-0.012 (-0.11)	-0.008 (-0.06)	-0.003 (-0.03)		0.014 (0.11)	
LANFO				-48.815 (-2.74)		-49.155 (-3.49)
IRRIG				-14.383 (-2.10)		
NAGL						-0.292 (-3.04)
R^2	0.075	0.076	0.052	0.218	0.059	0.305
F Statistic	1.61	1.86	1.16	4.93	1.31	8.20
no. of observations	72	72	72	72	72	72

* 2SLS. All variables in brackets refer to the t-statistics corrected for heteroscedasticity using the Huber-White method. See the appendix (Annex 10) for sources of data.

While the regression results using either OLS or 2SLS showed that not one of the explanatory variables was found significantly related to $logMWB_i$ apart from MAL, the observed signs of the estimated regression coefficients for the explanatory variables hold some interest. For instance, as expected, $POVI_i$ is positively related to $logMWB_i$. This means that the higher the incidence of poverty, the higher is the morbidity rate from water-borne diseases.

Other variables that had regression coefficients with the same sign as hypothesised are POT (negatively related to $logMWB_i$) and ILLIT (positively related to $logMWB_i$). Surprisingly, however, SAN was found positively related to $logMWB_i$. It is possible that the presence of the other independent variables in the same equation may be affecting the sign of the regression coefficients.

5) Net Migration Model

After a series of regressions using different combinations of the variables listed in equation (5.5), the most insightful regression results are shown in Table 7. $POVI_i$ was not found to have a statistically significant influence on $NMIG_i$ (see Columns 1 to 3). It is possible that because several of the independent variables are highly correlated with $POVI_i$ (such as ELEC, POT and SAN), the regression coefficient of $POVI_i$ became statistically insignificant. A two-stage least squares regression, therefore, was performed to check whether this hypothesis is true or not. The results using 2SLS are shown in columns 4 and 5. Indeed, with all others things being equal, $POVI_i$ was found to have a significant negative influence on $NMIG_i$. This means the higher the poverty

incidence in the province, the more people migrate to other places. It is possible that low incomes and the lack of gainful employment opportunities are pushing people out of the province. The results should be treated with caution, however, because the other independent variables which were earlier found to influence $NMIG_i$ (namely, POPDEN, URB, FLIT and ROADEN) became statistically insignificant with $POVI_i$ in the equation. Also, the coefficient of determination (or R^2) of the equations in Columns 4 and 5 with $NMIG_i$ as the dependent variable was found to be nil. This means that the regression as a whole does not explain any variation in $NMIG_i$.

As to the other independent variables in equation (5.5), as expected URB, ELEC, SAN, LANFO and DIST were found to have a positive influence on $NMIG_i$. This means that the more urbanised a province is and the better the access to electricity and sanitation, the more in-migrants there are than out-migrants. It is possible that people are encouraged to go to urban centres because they have relatively more modern infrastructure facilities and higher wages. Also, it is possible that distance has an inhibiting effect, so that provinces farther away from Luzon tend not to be out-migration areas. Access to potable water (POT), however, was not found significantly related to $NMIG_i$ even after dropping variables with which POT is highly correlated, such as SAN and ELEC.

Surprisingly, POPDEN and FLIT were found to have a positive influence and ROADEN a negative influence on $NMIG_i$. This means that having more people in an area and being functionally literate are 'pull' rather than 'push' factors. It may be inferred, therefore, that people may

Table 7. Coefficient Estimates derived using the Huber-White cluster regression formula*

	Number of the regression equation						
	1	2	3	4		5	
Dependent Variable	NMIG	NMIG	NMIG	NMIG	POVI	NMIG	POVI
Estimation Method	(OLS)	(OLS)	(OLS)	(2SLS)	(OLS)	(2SLS)	(OLS)
constant	-1.646 (-1.10)	-13.880 (-3.89)	-12.609 (-3.69)	7.436 (1.82)	91.99 (8.14)	7.83 (1.51)	91.99 (8.14)
POVI	- 0.028 (-1.34)	0.012 (0.62)	0.016 (0.74)	-0.181 (-2.60)		-0.188 (-2.08)	
ELEC	0.070 (4.48)						
POPDEN		0.003 (2.24)		-0.0002 (-0.14)			
SAN		0.061 (5.45)	0.052 (4.68)		-0.450 -4.03		-0.450 -4.03
URB			0.046 (1.86)			-0.010 (-0.22)	
LANFO		10.812 (4.03)	9.291 (3.81)		-44.78 (-3.00)		-44.78 (-3.00)
FLIT		0.076 (2.26)	0.056 (1.96)	0.031 (0.92)		0.035 (0.96)	
ROADEN	-0.811 (-2.06)	-1.028 (-2.57)	-0.820 (-2.16)	-0.879 (-0.98)		-0.937 (-1.06)	
DIST	0.853 (2.60)						
R^2	0.343	0.488	0.495	nil	0.278	nil	0.278
F Statistic	5.58	9.56	9.37	4.02	8.39	3.26	8.39
no. of observations	71	71	71	71	71	71	71

* All variables in brackets refer to the t-statistics corrected for heteroscedasticity using the Huber-White method. See the appendix (Annex 10) for the sources of data.

prefer to stay in a densely populated province because it may have a comparatively extensive labour market and more infrastructure facilities than a less-populated province. POPDEN was in fact found highly

correlated with URB and ELEC (see Table 2 in Annex 11). As for FLIT, the relevant results suggest that, due to positive externalities, people prefer to live among people who are functionally literate. Turning to the variable ROADEN, its negative influence on $NMIG_i$ may be explained by the fact that roads improve mobility and encourage people to leave the province.

5.7 Conclusions

The incidence of poverty was found to have a significant effect on some demographic and health variables. Using data across the provinces of the Philippines in 1990 and 1991, the results indicate that, with other things remaining the same, poverty has a positive effect on infant and child mortality as well as on fertility rates and a negative influence on net migration. Poverty, however, was not found to have a statistically significant effect on morbidity from water-borne diseases.

If these results prove to be robust on further testing, then they have policy implications of some importance. For instance, reducing, if not eliminating, the incidence of poverty in a province will tend to help, as a subsidiary consequence, in improving the level of health in this province - as measured, for example, by the reduction in the level of the infant mortality rate. This latter improvement, along with the reduction in the level of poverty, will also assist in reducing the total fertility rate in a province. Finally, the findings presented earlier also suggest that addressing rural poverty will tend to discourage people from migrating to the cities.

Chapter 6

The Height for Age of Young Filipino Children - A Study at the Micro Level

6.1 Introduction

After considering some of the consequences of income-only poverty at the macro level, this chapter turns to analysing some of the consequences of per capita income combined with other economic and social variables on the health status of young children in two rural villages in the Philippines. This latter point can be expressed differently if it is supposed that a measure of well-being poverty is some combination of the per capita incomes received by less well off households along with the access these households have to certain social infrastructure (such as schooling, electricity, housing and preventive health services). Granting this loose definition of well-being poverty, then the present study essentially is concerned with determining the influence that well-being poverty has on the health status of young children.

That said, the way in which the health status of young children is measured in this chapter is the height for age in early childhood. In developing countries this measure has been used widely as a measure of the health status of children in these countries. What is emphasised here is that recently this measure has come to be seen as being an

important indicator of community well-being since it is now realised, due to the work of Pelletier (1994) and many others cited in Pelletier (1994: 2955S - 6S) that as the height for age for young children falters, relative to some suitable norm, these children become more exposed to the risk of death. This risk appears to rise sharply after the height for age of a child falls further and further below 85 - 90 per cent of the relevant norm.[119]

No doubt, in addition, associated with this increased risk of mortality is an increased risk of morbidity amongst children in early childhood. What is more, should the height for age for a child falter in early childhood, and the natural environment in which the child lives does not improve over time, then probably the height of this person will never recover to its full potential (Martorell et al. 1994). There is also evidence to indicate that the mental capacities of malnourished children are also impaired, compared to the capacities of children who are not malnourished (Grantham-McGregor 1990). This near life-long stunting, both physical and mental, of a child clearly will impose a psychic and economic cost on this person which may well reach into this person's adult life. So, in the instance of this person being called upon to perform physical labour in order to generate a livelihood, it is known that a stunted person has a reduced capacity to perform physical labour (Spurr 1990). As a consequence this person will receive a lower money income (Haddad and Bouis 1991 and Thomas and Strauss 1997)[120].

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119 That this percentage is so high has come as something of a surprise to researchers (Pelletier et al. 1995).

120 Thomas and Strauss (1997) allow for the endogeneity that possibly runs between wage and health status. This endogeneity arises since an improvement in health status contributes to an increase in the wage rate, and vice versa. If this endogeneity is not allowed for, then a measure of the importance of some relevant variable - for example, the extent of the influence of an improvement in the level of nutrition on wage rates - will tend to be biased upwards.

The cost of this stunting also will carry over into the next generation since mothers who are stunted also tend to give birth to children with a comparatively low birth weight (Waterlow 1993).

It follows on from these observations that if a community is to be able to increase its long-term rate of economic development, then a part of such an endeavour will be to improve the health status of its members, and especially the young children in this community. What is more, the previous remarks also suggest that the health status of a young children in a developing country, as measured by the height for age of young children, may be taken to be a useful proxy measure of the level of well-being of the developing community concerned. Part of the reason for making this statement is that Dasgupta and Weale (1992: 124) have argued, based on supporting empirical evidence, that the best single measure of the level of well-being, or overall development for a developing community is the measure of life expectancy at birth for the community concerned. However, the level of life expectancy at birth will be strongly influenced by the level of child mortality rates - the higher these rates the lower the level of life expectancy. What is more, and as indicated earlier the child mortality rate will be influenced by the height for age of young children. Thus this latter variable may be viewed as a useful proxy variable to employ as a measure of the overall level of well-being in a developing community. And if this line of argument is accepted then any increase in the level of the health status of young children in the community concerned may be taken to be a good representation of an improvement in the level of well-being in this community.

The question now becomes one of how can this improvement in the health status of young children best be achieved in the Philippines. This is the question which I attempt to answer in this chapter by way of considering, essentially, the influence that well-being poverty has on the height for age of young children in two carefully-selected villages in the Philippines.

To begin to answer this question it needs to be determined what factors most influence the height for age of young children in a developing country.[121] The relevant literature bearing on this matter, to be cited later, is not extensive and the list of relevant factors does not seem to be complete. Thus in the attempt to fill in some of the detail, the present study makes use of a data set derived from field work carried out in 1997 in two carefully-selected villages studied in Chapter 4. One of the villages selected for intensive study was relatively poor both in terms of the level of per capita income and in the level of access to basic infrastructure, while the other was comparatively well off on both counts. This selection of these villages implies that the data collected for any relevant variable are likely to possess a comparatively large variance - even though only a modest number of observations were made of the variable concerned. In addition, this field work allowed comparatively detailed sets of data to be collected for variables which tend not be found in national household surveys. Both of these issues are important for generating robust and useful statistical results.

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121 There are other indicators of health conditions of young children such as weight for age and height for weight. However, I used height for age because it is a widely used indicator of health condition of children in developing countries such as the Philippines and because of time and logistical constraints.

In the next section the study site is described and discussed. In section 6.3 the relevant literature is discussed within the context of a suggested set of variables that suitably may be employed in a regression model. The regression results are discussed in section 6.4 and concluding remarks are made in section 6.5.

A number of results are to be reported here that have not been widely reported, if reported at all, in the relevant empirical literature. Of these results, perhaps one of the more important is that the level of education received by the mother and father of a young child seems to work along channels that only *indirectly* influence the height for age of a young child. The rest of the reported results are summarised in the concluding section.

6.2 The study site

To ensure that the data collected in the field work were drawn from a population which possessed a comparatively wide range of relevant characteristics, the field work was carried out in the villages, or *barangays* of San Juan in Mandaon, Masbate and Nangalisan in Tuba, Benguet - Masbate being one of the poorest and Benguet being one of the better-off provinces in the Philippines. As for the geographic location of these provinces, Masbate is an island province whereas Benguet is landlocked, while both provinces are part of the island group of Luzon in the Philippines.

A detailed discussion was provided in Chapter 4, section 2, concerning the relevant characteristics of these two *barangays*.

However, to save the reader the task of referring back to that section, some of the relevant information set out there will be set out here.

To generate detailed information concerning the households in each village, households were randomly selected from each village based on a list provided by the village secretary. The list was confirmed with other key informants such as the *barangay* chairman and the teachers. A household is defined as a 'social unit consisting of a person living alone or a group of persons who: (a) sleep in the same housing unit; and (b) have a common arrangement in the preparation and consumption of food' (NSO 1995: xii). A survey of the economic and social characteristics of 191 households (88 households in *Barangay* San Juan and 103 households in *Barangay* Nangalisan) was conducted with the use of a questionnaire. The survey questionnaire (see Annex 7) consists of three parts: the first consists of basic questions on the members of the household, the existence of household amenities (such as water supply, sanitary toilet facility, electricity and home appliances) and access to general service facilities/centres (such as schools, village hall, postal service, church, market place and public transportation); the second consists of questions on household income (sources of income disaggregated into agriculture and non-agriculture as well as regular and seasonal); the third part refers to matters relating to women's work, reproduction, access to and use of health and family planning facilities and services in the community and includes, as well, questions on the health of the children (such as episodes of diarrhoea and treatment). Also, the actual height of children five years of age and below was measured by the author by using an engineer's metre.

In Table 1 are set out some economic characteristics for the households in *Barangays* San Juan and Nangalisan, based on this initial survey conducted in these two villages. Clearly, the average household in *Barangay* Nangalisan is better-off compared to that in *Barangay* San Juan. This is so both in terms of the average level of household income received and access to infrastructure facilities. The reported average income of a household in *Barangay* Nangalisan (Benguet) is about 1.6 times greater than that for a household in *Barangay* San Juan (Masbate). Households in *Barangay* San Juan on average have homes further away from their domestic water supplies than do households in *Barangay* Nangalisan - indeed many households in *Barangay* Nangalisan have water connections to their houses. Households in *Barangay* San Juan, however, have to rely on public wells. The survey results indicate that it will take an average household in *Barangay* San Juan a return time of 16 minutes to acquire water, as against three minutes in *Barangay* Nangalisan. As for the structure of dwellings in San Juan, the majority (86 per cent of those interviewed) used either palm bamboo or wood planks for their house flooring. In contrast, most of the houses in *Barangay* Nangalisan have cement floors. *Barangay* San Juan also has a lower proportion of households with access to electricity and sanitary toilet facilities. For most of the infrastructure variables, Table 1 reveals that there was no variation within the poor *barangay*. Both villages, however, have a substantial proportion of households with radios.

Table 1. Selected Economic Indicators for Two Villages in the Philippines, 1997

INDICATOR :	Barangay San Juan: Masbate)	Barangay Nangalisan (Benguet)
(Number of households)	88	103
Average annual nominal household income in Philippine pesos (1996)	33,694	55,347
BASIC AMENITIES		
Ave. Length of Time to travel		
to source of water and back (in mins.)	16.0	3.0
Main material of household floor (%):		
Cement	2.0	71.0
Palm bamboo	66.0	8.0
Wood Planks	20.0	16.0
Earth/Sand	11.0	4.0
Vinyl	1.0	0
Parquet or Polished Wood	0	1.0
INFRASTRUCTURE		
Proportion of households with:		
electricity for home consumption (%)	0	65.0
electricity for home production (%)	0	16.0
electric or gas range or stove	8.0	24.3
potable water (%)	0	80.6
sanitary toilet facilities (%)	3.4	58.2
radio (%)	81.0	82.0

Note: Apart from income, all the data contained in the table are 1997 figures.

Source: Household survey questionnaires

Some social indicators for the two villages are set out in Table 2. This survey data indicate that people living in *Barangay* Nangalisan are comparatively better-off than the people of *Barangay* San Juan in terms of education. Basic literacy rates are higher in *Barangay* Nangalisan than in *Barangay* San Juan. The overall basic literacy rate for *Barangay* Nangalisan is almost the same as that for Benguet province in 1990. (In fact the basic literacy figure for *Barangay* San Juan is similar to that for

Masbate province almost 30 years ago (in 1970).) The levels of formal education received by both the fathers and mothers in the households surveyed were higher in *Barangay* Nangalisan than in *Barangay* San Juan.

The health status of children is relatively better in *Barangay* Nangalisan based on data for height for age and the proportion of children with episodes of diarrhoea. To begin with the proportion of children between one month and sixty months who were below the median height for age using Filipino standards was higher in *Barangay* San Juan. (The distribution of the height for age in the Philippines is that provided by the Philippine National Nutrition Council and set out in Florentino et al. (1992).) In addition, in *Barangay* San Juan almost 100 per cent of the children between one month and sixty months in the two villages have heights below the height for age standard based on the 95 percentile.

That said, the purpose of the present study is to attempt to explain this relative stunting amongst the children in these two *barangays*. Before turning to consider this issue in some detail, however, it is noted that this stunting is certainly related to the level of diarrhoea that was to be found in these two *barangays*. And factors that may explain this incidence may be the level of formal education received by the parents and the relative ease of access to safe water in these two *barangays.* As for this latter observation, it is based upon the study by Tonglet et al. (1992) linking the incidence of diarrhoea in children and the time taken to walk to the nearest safe water supply. (Burger and Esrey (1995) provide a survey of the literature on the link between childhood diseases

and ease of access to safe water.) It is studies of this sort, and the results they generate, that, in part, motivate the present discussion.

Table 2. Selected Social Indicators for Two Villages in the Philippines, 1997

INDICATOR	Barangay San Juan (Masbate)	Barangay Nangalisan (Benguet)
(Number of households)	88	103
EDUCATION		
Literacy Rate (10 years old and over)		
Total	78.2	92.2
Male	73.5	92.6
Female	82.7	91.9
Average no. of years of education - fathers	6.75	8.67
Average number of years of education - mothers	5.72	9.24
Percentage of persons 25 years old and over with academic degree	3.9	14.8
Percentage of persons 15 years of age and over with no education:		
Male	.02	.02
Female	.04	.04
HEALTH		
Percentage of children aged 1 to 60 months below standard height:		
(based on P50 percentile)	78.0	60.0
(based on P95 percentile)	98.0	87.0
Percentage of children < 5 yrs. old with diarrhoea episodes in the last two weeks prior to the interview	12.0	7.0
Duration of diarrhoea episode (no. of days)		
range	1 to 15	1 to 10
mean values	4.14	3.43

Source: Household survey questionnaires

6.3. Considering factors that influence the height for age in early childhood

6.3.1 Some comments on the data set

Prior to discussing the regression models, a brief description of the data set used in this chapter is presented in this section. Table 3 presents a summary of the data used in these models. A definition of the variables is contained in the appendix (see Annex 12). As indicated earlier, the height of the children was measured while performing the initial basic survey. All the other information were obtained with the use of a survey questionnaire (see Annex 7). For instance, the data on income was based on responses to multiple questions on sources of income in 1996. Since income data is usually affected by problems of recall and confidentiality, I carefully reviewed the sources of income together with the head of each surveyed household. I also explained to the respondent that I am not connected with the government or any private institution and that the study is being conducted solely for academic purposes. It was also made clear that the private income data collected would not to be passed on to any other party. To assist with convincing the surveyed household of this fact I also allowed some time prior to the conduct of the household survey to gain the confidence of the respondents and the people in the village in general.

Of the 191 households included in the survey of rural households, there were 118 children with ages between one to sixty months whose heights were measured. Of the 118 children in the sample, 62 per cent (or 73 children) were from *Barangay* San Juan. As to composition

by gender, about 56 per cent (or 66 children) were male. Since some of the households in the survey (about 15 per cent) had more than one child, sampling was not restricted to one child per household.

Table 3. Summary Statistics*

Variable	Mean	Standard Deviation	Minimum	Maximum
H	4.241	8.172	-15.23	30.52
FEMED	7.525	3.281	0	16
MALED	7.458	3.871	0	14
FEMALED	14.983	6.699	0	30
AGE	25.102	16.266	1	60
SQAGE	892.441	942.066	1	3600
CUBAGE	36788.12	54190.06	1	216000
AGEGAP	33.597	20.569	12	72
NCHLD	1.186	0.969	0	4
GENDER	0.559	0.498	0	1
EGSTOVE	0.161	0.369	0	1
FRIDGE	0.169	0.377	0	1
ELEC	0.322	0.469	0	1
PWF	0.492	0.502	0	1
TIME	7.974	14.092	0	60
NWAGE	3.110	1.753	2	9
IRRIG	0.280	0.451	0	1
LANO	0.443	1.534	0	12
HOUSE	2.178	1.075	1	4
INCOME	45282.11	87890.35	0	618500
PCAPINC	7920.44	20450.72	0	154625
FOC	1.237	0.427	1	2
MOC	0.983	0.784	0	2
D	0.602	0.492	0	1

*See Annex 12 for a listing of the variables.

Outliers in the data set (which were determined by the use of a scatter plot) were deleted from the sample as this unusual data were suspected of containing measurement errors. After the removal of these outliers there remained 115 complete sets of observations. It was this data set that was used in the statistical analysis.

As for the possible correlations between the various variables that might be used in the statistical analysis, this may be detected by calculating the correlation coefficients between all these variables. The matrix of these variables is set out in Table 4 in Annex 13. What these correlation coefficients indicate is that, for instance, FEMED was found to be highly correlated with MALED; HOUSE with ELEC and PWF; ELEC with FRIDGE and the village dummy, D, with MALED, TIME and HOUSE. This information indicates that when these variables are employed to estimate a relevant form of a regression equation, multicollinearity may be present. The presence of this high collinearity means that it is not possible to measure the separate influences on the dependent variable of the particular variables that are correlated. However, as will be demonstrated later, it is still possible to gain some insights into how *each* variable, in sets of variables that are highly correlated, influences the height for age of young children. As indicated later, this insight is gained by the application of a two-stage estimation procedure.

6.3.2 The regression model

6.3.2.1 The basic model

Various hypotheses are tested in the attempt to identify what factors influence the normalised height for age of young children.[122] This is done by estimating the size of various coefficients in relevant econometric equations. These equations are then subjected to a range of statistical tests.

The normalisation of the height for age of young children allows for the fact that the height of a child will be influenced by its age. Thus the norm, n_i, used for a child of a given age i was set at the mean height for Filipino children at this age.[123] Thus for a child j of age i (up to age five) whose height was h_{ji}, the health status for this child was measured by: $H_{ji} := [(n_i - h_{ji})/n_i]$.[124] The variable, H, is called here the h-score. (This definition is similar to the height for age z-score cited in the relevant nutrition literature (for example, Pelletier (1994)) - a measure that is based on the mean height for age for the community and allows for the variance in the height for age for this community.)

The variables measured in the initial surveys provide a range of relevant variables to be used as independent variables in appropriate regression equations. The general form of these equations is:

$$H_{jik} = b_o + b'x_{jik} + \mu_{jik}, \quad (6.1)$$

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122 In the relevant literature the health status of children has been measured by using other variables such as weight-for-age and weight-for-height. Due to the lack of time and research funds, no attempt was made to measure these alternative measures of health status.

123 As mentioned in section 6.2 in the main text, the standard for the height for age of children in the Philippines was taken from Florentino et al. (1992).

124 Another measure of health status that was also experimented with was $H^*_{ji} := (n_i - h_{ji})$. The econometric results obtained by using this dependent variable were not as satisfactory as those derived by employing H_{ji} (as the dependent variable).

where j refers to the individual child of age i. As for the subscript, k, it denotes the cluster of data observations from a particular *barangay*. The term, x_{jik}, denotes a vector of independent and exogenous variables. The term, μ_{jik}, denotes an error term whose value is assumed to be dependent on which cluster of data is used to estimate the relevant form of the regression equation.

The vector of coefficients, b, and the constant term, b_o, were estimated by applying the Huber-White cluster method. This estimation method was employed to mitigate the possible presence of (a) the cluster problem - which was likely to arise if the data collected from within a particular *barangay* are correlated - and (b) heteroscedasticity. Since there were substantial relevant differences between the two villages, the data under study may be bimodal and thus result in clustering. The cluster problem causes the standard errors (or t-statistics) to be biased.[125] Heteroscedasticity, on the other hand, causes both the standard errors to be biased and the ordinary least squares method of estimation to be inefficient.[126]

As for the independent variable, the relevant literature cites genetic endowments and the level, and type of nutrients made available to children as the main factors affecting the height for age of young children (Martorell and Ho 1984, Bouis and Haddad 1990, Bhargava 1994, Martorell et al. 1994 and Haughton and Haughton 1997). As for

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125 Deaton (1995: 1817 - 9 and 1997: 74 - 8) provides a discussion of the cluster problem.

126 A discussion on how the difficulties raised by the presence of heteroscedasticity may be overcome is provided in White (1980) and Deaton (1997: 78 - 80).

the level of availability of nutrients is concerned, there is a range of factors that could influence this variable - such as the amount of time mothers have to allocate to each one of her children, the morbidity rate of children who have not yet begun school, health and sanitation practices and facilities, and the nutritional knowledge of mothers (Bouis and Haddad 1990). Unfortunately, however, apart from information on the use of some health and sanitation facilities, it was not possible in the survey to measure the various variables that have just been mentioned.

Nevertheless, there is a range of other variables that may provide equally useful relevant information - especially from the point of view of designing more effective relevant policies aimed at improving the health status of young children. Such variables are the level of education of mothers and fathers, the amount of income per capita received by a household, the quality of the household dwelling, access to electricity and so on. So, for instance, the level of per capita income received by a household can reasonably be expected to influence the amount of nutrition a child in this household will receive. Thus it seems reasonable to hypothesise that this variable, and after allowing for other considerations, can be expected to influence the size of H of a given child under the age of five.

To expand on this general theme, the years of formal schooling of the mother as well as the father are expected to decrease the size of the h-score of children in the household concerned. This hypothesis is supported by the findings contained in most of the relevant literature on education and health in developing countries as surveyed by Levine et al. (1994) and Jejeebjoy (1995: Chapter 6). Similarly, an increase in the size of the variable combining the education of the mother and the father

is likely to reduce the level of the h-score. This is so, since as the level of education of the fathers and the mothers increase they tend to appreciate more the importance of adequate and proper nourishment for their children, and are more informed on matters of public health. Also, an increase in the level of this variable will increase the level of income received by the household that, in turn, allows the provision of better quality of housing and higher levels of nutrition for the children in this household. Thus the level of education can be expected to work through a number of other variables that, in turn, influence the level of the h-score for children. This matter is expanded upon later.

As for the influence of a child's age on its height relative to the chosen norm, it is thought that the age of the child has no influence during the first three months of life. This is so since the child probably is being breastfed and, therefore, is exposed to comparatively few pathogens in the natural environment (Huffman and Steel 1995: 147 and the references cited there). As the age of the child rises above three months of age, however, more children begin to be weaned and come to be increasingly exposed to more sources of disease. Consequently the height of the child begins to falter. Eventually, however, children probably begin to build up some immunity to the pathogens in the natural environment and, therefore, their height for age (relative to the norm) begins to recover to some degree - other relevant things having been allowed for.

A decrease in the age difference between the youngest and the eldest child (under the age of 96 months) in the household is expected to result in an increase in the level of the h-score for a young child in this household - other things remaining the same. This relationship is

hypothesised since as the age difference decreases there will tend to be more competition between young children for the limited resources in the household - and the amount of food present in the household, and the amount of time the parents have available to attend to the needs of a young child. This hypothesised relationship is consistent with the research findings of Horton (1988) and Haughton and Haughton (1997). The results presented in these studies are open to question, however, since the estimates of the relevant regression equations did not allow (as is done here) for the cluster problem.

In the present study, the maximum age of the eldest child was set at 96 months (or eight years old). Then the age gap for a household was measured by the actual difference between the ages of the eldest and the youngest child in this household. However, for households with only one child, or households with two or more children for which the age gap between each child was thirty-six months or more, then the age gap was set at thirty-six months. The reason for imposing this assumption is that it seems reasonable to suppose that thirty-six months (or three years) is a sufficient period for a child to be weaned satisfactorily.

As to the gender of the child, it is possible that male children may either have lower or higher heights for age than female children. Since male children are expected to assist in more heavy and strenuous work on the farm, they are fed more than their female siblings who usually assist their mothers and elder female siblings in household chores. That said, it is also recognised that since boys generally help in carrying heavy loads on the farm then it is possible that it would be more difficult for them to reach their potential height for their age than girls. Related studies were conducted by Horton (1988) and Haughton and Haughton

(1997). Using data from the Philippines in 1976, Horton found that while girls had lower weights-for-height than boys, both girls and boys were equally stunted. On the other hand, Haughton and Haughton, in a study of child malnutrition in Vietnam also found no evidence of any gender bias against girls, with boys having a lower weight for height z-score, *ceteris paribus*, and were more stunted than girls although the latter effect was not found statistically significant at the five per cent level. In the present study gender is allowed for by assigning a value of one (1) to male, and zero (0) to female young children.

To summarise the previous discussion, the basic model for a household takes the following form. The variable H_{jik} is the dependent variable. The first independent variable is one of three alternative measures of education: the logarithm of the mother's years of schooling, or the logarithm of the father's years of schooling, or the logarithm of the sum of the mother's and father's years of schooling. The second set of independent variables consists of the age of a child in the household, this age squared and then cubed. Each of these variables is treated separately in the basic model. The third independent variable is a measure of the age gap of children within the household. Finally, the gender of a child is allowed for.

6.3.2.2 Extensions of the basic model

The basic model was extended by considering three alternative models. The reason for these alternative models was that they provided a way of contending with the problem posed by the relatively high levels of correlation between single, or groups of independent variables such as the level of education of fathers and mothers, household income per

capita, the quality of housing and factors contributing to household infrastructure. Because of the resulting multicollinearity problem that arises when including all of these variables as independent variables in the basic model, some of these variables were excluded from this model even though it was believed that these variables in actual fact had a statistically significant independent influence on the level of the h-score of a child. To capture at least to some degree the influence of these variables on the height for age of young children, the basic model was extended in various ways.

The first extension takes the form of the following set of variables being included as independent variables in the basic model: both the logarithm value of the combined mother's and father's years of schooling, the logarithm of per capita household income, along with relevant variables to measure the influence of the age of the child, the age gap and the gender of the child on the height for age of this child. The additional independent variable that was included in this revised basic equation - the logarithm of household income per capita - may be expected to influence the level of the h-score for young children in a number of ways, such as through the level of nutrition available to young children, the quality of housing and private health facilities available to a household. This general observation tends to be confirmed by a study of pre-schoolers in Bukidnon Province on the island of Mindanao in the Philippines where Bouis and Haddad (1990) found a strong association between income and height for age for children less than one year old. (They attributed this finding to the possible better nutrition of mothers in high-income groups during pregnancy and breastfeeding.) The results presented later also confirm that there is a statistically significant

(negative) relationship between the level of logarithm income per capita and the h-score - that is after allowing for other things.

That said, the level of household income was also thought to be influenced by the level of education for the mother and the father. Thus in a specification of a second regression equation, logarithm of per capita household income was the dependent variable while two of the independent variables were the mother's years of schooling and the father's years of schooling. Other independent variables that also were thought to influence the level of household income were whether or not the household has access to electricity, the number of members in the household who were employed, whether or not the household has access to irrigation and whether or not the household owns the land it farms. These variables were also included in the specification of the second equation to be estimated.

This specification of the household income (the second) equation was estimated using ordinary least squares. The results obtained were then used to provide the predicted value of household income per capita (the dependent variable). This estimate was then used as an instrumental variable for household income per capita in the estimation of the basic (first) equation. Thus the basic equation was estimated by making use of the two-stage least squares estimation procedure. To provide a point of comparison, the basic equation was also estimated by making use of the ordinary least squares method.

To summarise this line of argument, let y be the new independent variable that was introduced into the basic model set out in equation 6.1. This gives the following:

$$H_{jik} = b_o + b_1 y_{jik} + b'x_{jik} + e_{jik}, \qquad (6.2)$$

where e_{jik} denotes the random error term. The new independent variable, y, is influenced, however, by another vector of independent variables, w_{jik}. This relationship is represented in equation 6.3,

$$y_{jik} = d_o + d'w_{jik} + j_{jik}, \qquad (6.3)$$

where j_{jik} is the random error for this equation.

Ordinary least squares was used to estimate the vector of coefficients, d, in equation 6.3. The resulting estimates of these coefficients were used, along with the vector of independent variables, w_{jik}, to provide an estimate of y_{jik}. This estimate, in turn, was used as an instrumental variable to assist with providing a two-stage least squares estimate of the coefficients in equation 6.2.

Turning to the second extension of the basic model, it is the same as before except that the quality of housing was included in the basic equation - an equation in which household income per capita (not the logarithm household income per capita) may or may not be present. The quality of housing was measured by an index that takes a smaller value the higher the quality of the family home. A house with a cement floor was assigned a value of 1; a house with a wooden floor was assigned a value of 2; one with a bamboo floor a value of 3 and a house with an earthen floor was assigned a value of 4. It is hypothesised that as the quality (measured by the type of flooring) of the family home improves, so the height for age of the child will increase.

A related result that is consistent with this conjecture is to be found in Pebley and Goldman (1995) - although a result based on data for Guatemala. A relevant study that does use data for the Philippines, however, is that by Solon (1989). In this instance the quality of flooring, *ceteris paribus*, was found to have a positive influence on children's health in two urban areas in the Philippines. The result was based, however, only on the respondent's own valuation of the health status of their children - not, as done here, on some reasonably objective measure of health status such as the height for age of young children.

As for the possible reasons why this relationship should exist, it might be conjectured that the level of the quality of housing for a household may be taken to be a proxy measure of household income per capita - the higher the quality the higher the level of income per capita. (In fact the relevant correlation coefficient in Table 4 indicates only a limited relationship between these two variables.) Perhaps of more importance is the possibility that an improvement in the quality of housing should assist with reducing the likelihood of the spread of disease within the household concerned. Thus the quality of household housing, in turn, can be expected to operate through a number of other variables (or along a number of channels) that most likely influence the height for age of young children. In support of this conjecture is the fact that of the 48 households who owned dwellings with a cement floor, 41 of them (85 per cent) had private water facilities. In addition, the correlation coefficient between the quality of housing and the quality of sanitation and safe water facilities (PWF) was 0.55. Thus those who owned better quality housing tended also to have access to better quality sanitation and safe water facilities. (This high level of correlation

between these variables also suggests that should the quality of the water supply and sanitation, along with the quality of housing, both be included in the same regression equation, then multicollinearity would be present in the estimation of this equation.)

As before, the level of the quality of housing and household income per capita both are likely to be influenced by a range of other variables - such as the level of education of the parents and their occupation. Thus in the second regression equation (see Table 6) the logarithm of the quality of housing, or the household income per capita were treated as dependent variables and were regressed on the level of education of the parents and their occupation. As before the regression result obtained (by applying the ordinary least squares method of estimation) was used to provide the predicted value of the respective dependent variables. These respective estimates were then used as an instrumental variable in the relevant form of the basic (first) equation. As before, the basic equation was estimated by making use of the two-stage least squares estimation procedure.

The third extension of the model looks into the main source of energy as well as the presence of a refrigerator in the household as possibly influencing height for age together with per capita income, both in logarithm and non-logarithm form. One reason for considering these variables is that high levels of indoor pollution are known to contribute to respiratory infection amongst young children (World Bank 1993: 91 and the references cited on 179 - 80). Those children who are so infected may experience an increase in the shortfall in their heights for age. The hypothesis to be tested, therefore, is that children in those households that use firewood as the main source of energy (instead of some other

source of energy) tend to have larger deficits in their height for age - other things remaining the same.

The other reason for considering these variables is that the use of refrigerators reduces the contamination of food. But this food contamination is likely to increase the likelihood of a young child who consumes this food of experiencing a range of diarrhoeal diseases that contributes towards impeding the physical development of this child. Thus it is hypothesised that, with other things being the same, a household that has a refrigerator will have children who reach a higher level of height for age than children in a household that does not have this facility. (As far as I am aware, there is no relevant literature that considers this hypothesis.)

In the attempt to allow for the presence of indoor pollution, each household was identified by the main energy source it used for cooking. Those households that mainly used firewood for cooking were presumed to experience comparatively high levels of indoor pollution. These households were differentiated from those whose main energy source for cooking was either electricity or natural gas. A dummy variable takes a value of zero (0) if a household uses firewood as the main energy source and a value of one (1) otherwise.

It is possible, however, that cooking with electricity or gas is associated with other unobserved variables that were not included in the specification of the model, or may be acting as a proxy variable for other factors that influence the height for age - such as the presence of a refrigerator in a household. Indeed, the data revealed that households that have electricity or gas were more likely to have a refrigerator. Of the

17 households cooking with electricity or gas, 14 (or 82 per cent) were to be found in *Barangay* Nangalisan, and of the 14 dwellings, seven of them (50 per cent) had a refrigerator. In addition, the correlation coefficient between the use of electricity or gas for cooking and the use of refrigerators was 0.43 - those who used electricity or gas as their main energy source tended also to have a refrigerator. Nevertheless, in the attempt to identify the possible influence of this variable on the height for age of young children, use was made of a dummy variable. Specifically, a dummy variable is assumed to take a value of zero (0) if the household has a refrigerator, and a value of one (1) otherwise.

Since cooking with electricity or gas may be a proxy variable for refrigeration and *vice versa*, these variables were run in separate regression equations in the third extension of the basic model. Both variables are expected to have a significant negative influence on height for age differentials, assuming all other variables are held constant.

6.4 Regression results and analysis

6.4.1 The basic model

After some experimentation with a range of relevant variables discussed in the preceding section, the regression equations which gave the most robust, stable and insightful results are those set out in Tables 5 to 8. With some exceptions that are considered later, most of the coefficient estimates set out in these tables were statistically significant at just above the five per cent level, or less. In addition, all coefficient estimates have the signs which intuition suggests they should have. This last assertion is explained by way of considering, in turn, each variable that is referred to in these tables.

Table 5 presents the results of regression of the basic model as represented in the general form set out in equation 6.1. These results indicate that, with other things being kept the same, an increase in the logarithm of the level of the mother's years of schooling increases the height of her child when set against the average height of Filipino children of the same age as the particular child being considered - in other words, reduces the level of the h-score for this child. However, the mother's years of education was found less statistically significant than that of father's education.

Although not set out in Table 5, when both of these variables (in logarithmic form) were included in the same regression equation, their respective coefficients were not significantly different from zero. This probably is due, in part, to the fact that these two variables were correlated to a reasonably high degree and, thus, multicollinearity was a problem. The correlation coefficient between these two variables was 0.63. (See Table 4 in Annex 13.) Nevertheless, when these two variables were summed into a single variable, the influence of the logarithm of the total level of formal education received by the parents in a household was highly statistically significant and of the expected sign. (See regression equation 3 in Table 5.)

The relevant results found in the regression equations set out in Table 5 also tend to provide support for the earlier conjectures on the age variable as discussed in sub-section 6.3.1. Specifically, while holding other things the same, the trinomial form of the function, linking

Table 5. Basic Model: Coefficient Estimates derived using the Huber-White cluster regression formula*

Independent Variables	Number of the regression equation 1 (OLS)	2 (OLS)	3 (OLS)
constant	11.313 (5.29)	9.921 (13.16)	15.308 (84.95)
log mother's years of schooling	- 2.863 (-1.78)		
log father's years of schooling		-2.098 (-23.57)	
log of mother's plus father's years of schooling			-3.567 (-12.62)
age of child above three months	0.463 (2.11)	0.405 (1.67)	0.448 (2.06)
age of child squared	-0.018 (-2.10)	-0.017 (-1.68)	-0.018 (-1.92)
age of child cubed	.0001 (1.35)	.0001 (1.06)	.0001 (1.19)
age gap between the youngest and eldest child in the household	-0.057 (-45.22)	-0.057 (-50.48)	-0.056 (-36.53)
gender	0.275 (65.55)	0.524 (2.90)	0.220 (2.17)
R^2	0.160	0.156	0.174
no. of observations	115	114	115

Note: All variables in brackets refer to the t-statistics corrected for heteroscedasticity using the Huber-White method.
Source of data: household survey questionnaires

the h-score to the age of a young child, indicates that, to begin with, the value of the h-score begins to increase with age above three months. This increase takes place at a diminishing rate, however. At around thirty-two months the level of the h-score for the average child reaches its largest value. This calculation is based on the assumption that the height of a child begins to falter only after three months of age. (This

assumption is made since up to this age the child has not begun to be weaned.)[127]

After the age of about thirty-two months the average child begins to recover some of its potential height. By about sixty months, however, the h-score for the average child still has not recovered fully - that is, the average child still has not recovered all its loss in height in the earlier period (three to thirty-two months).[128] These observations are represented, approximately, in figure 1 by the graph relating the h-score to the age of a young child between zero and sixty months - that is after allowing for other relevant considerations. The graph may be thought of as taking an asymmetric inverted-u shape.

These results tend to confirm a finding by Chen (1983) and others (Martorell 1995: 20 - 21 and Strauss 1990); namely, that the height of children falters during the time a child is being weaned. These results also indicate, however, that children (at least in the Filipino villages considered here) do build up some immunity to pathogens in the environment. Nevertheless, the calculations represented in figure 1 suggest the possibility that the average child in the Filipino villages

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127 The figure of thirty-two months is derived, as follows (based on regression 3 in Table 3):

$$y = 15.308 + 0.448x - 0.018x^2 + 0.0001x^3.$$

On taking the first derivative of this equation, and setting the resulting equation equal to zero, we have:

$$(dy/dx) = [0.448 - 0.018x + 0.0001x^2] = 0$$

Through a process of numerical calculations, it turns out that this equation takes a value of zero when $x \approx 29$ months. Now three months are added to allow for the assumption that the age of a child does not falter during the first three months of life.

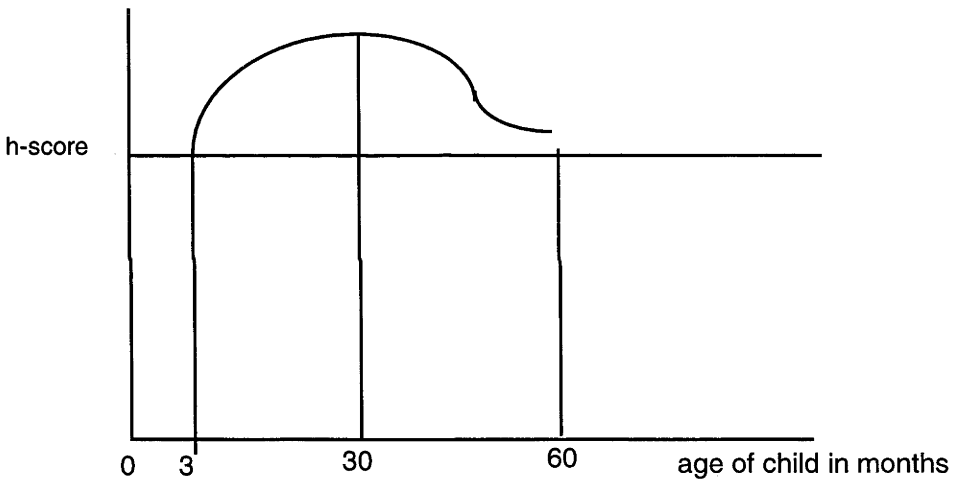
128 This statement is based on the equation (drawn from regression 3 in Table 3)

$$y = 15.308 + 0.448x - 0.018x^2 + 0.0001x^3.$$

When x is set equal to 57, this equation takes a positive value of 0.08.

surveyed may never recover to her/his potential height for age if this child remains within the same unaltered natural environment. (This is a topic for future research - research which could be directed towards testing a conclusion arrived at by Martorell et al. (1994) in their survey of a wide range of relevant empirical results; namely, if a child whose height has faltered in the first year of life continues to live in a contaminated environment, then the height for this individual probably will never recover fully to its potential height.)

Figure 1. Height-for-Age h-Score After Allowing for Other Things



The results just reported on the non-linear relationship between normalised height and age of young children also have some similarities with certain empirical findings reported in Deolalikar (1996). He found, based on data for Kenya, that infants, particularly in their first two years of life, experienced a recovery in weight after a short-fall at birth. Deolalikar (1996) does not provide, however, any empirical results on whether or not there was any loss, and then a recovery in the height of young children during the period of weaning.

A further result indicated by all the reported regression equations set out in Table 5 was that an increase in the age gap between the eldest and the youngest child in a household resulted in a decrease in the value of the h-score for a young child (relative to the chosen norm) who is a member of this household - other things remaining the same. This result is consistent with the relevant results presented in Horton (1988) and Haughton and Haughton (1997). This result is not inconsistent with the relevant hypothesis set out in sub-section 3.2.1; namely, as the age difference between the eldest and the youngest children in the household decreases, the value of the h-score for a young child will increase in size since, holding other things the same, young children will now have to compete more for the limited resources in the household.

As indicated by all the reported regression equations set out in Table 5, the gender of the child has a significant positive influence on the height for age for a young child (relative to the chosen norm) - other things remaining the same. This means that a male child has a higher h-score than that for a female child. This result becomes questionable, however, once allowance is made for other possible dependent variables. This point is demonstrated by the regression results presented in the next sub-section.

6.4.2 Extensions of the basic model

The discussion now turns to consider regression estimates of the extension of the basic model discussed in sub-section 6.3.2.2. As pointed out in that section, these extensions are directed at allowing for

additional independent variables (than those set out in Table 5) that possibly influence the height for age of young children.

The regression results set out in Table 6 are concerned with the first extension of the basic model. The basic equation was expanded to allow for the logarithmic value of household income per capita. On estimating the resulting equation using the ordinary least squares method, it was seen that the logarithmic value of household income per capita took the expected sign and was statistically significant. The sum of the mother's and father's years of schooling and the age gap between children were still significant. Also the age of children still influences the value of the h-score in the inverted-u pattern. However, the gender of children no longer was statistically significant in determining the value of the h-score.

A range of factors, however, may influence the level of income received by a household. Thus logarithmic value of household income per capita was treated as the dependent variable and then regressed on a range of variables that are thought to influence the size of the dependent variable. The results are set out in regression equation 3 in Table 6. The results of employing logarithm per capita income as an instrumental variable showed that the logarithm of the mother's years of schooling and access to electricity significantly increase the logarithm of per capita income (see equation 3). The level of the father's years of schooling was not, however, found to be significantly related to per capita income.

When the predicted value of logarithm of household income per capita was used as the instrument in the basic model (which includes the

logarithm of household income per capita), and this model was estimated using the two-stage least squares method, the logarithm of household income per capita was found to be even more statistically significant than in the initial estimation of the basic equation. (See regression equations 2 and 1 in Table 6.) However, the level of education of the parents no longer was statistically significant when using the two-stage least squares method of estimation. These various results suggest that possibly it is the mother's level of equation that matters, not the father's, when determining the value of the h-score for a child (at least when logarithm per capita income is an important variable for determining the h-score of a child). And that the channel along which the mother's level of education most influences the child's h-score is by way of its effect on the level of income received by the household.

That said, there appears to be other, alternative, indirect channels along which the level of education received by a mother and father influences their child's h-score. This was indicated in the regression results based on the second extension of the basic model. In this instance the logarithm of the quality of the household dwelling and household income per capita both were included in the basic model. The regression results for this expanded version of the basic model that are set out in regression equation 1 in Table 7 indicate that all the regression coefficients, except one, for the dependent variables have the expected sign and were statistically significant at the standard levels of significance. The exception was the regression coefficient for the gender of the child concerned.

The quality of housing, with and without per capita income present in the regression equation, was found to have a significant influence on

the value of the h-score for age of children, assuming all other variables are held constant. The relevant statistically significant coefficient estimates for this variable, reported in Table 7, suggest that as the quality of the family home deteriorates (respectively improves), so the value of the h-score increases (respectively decreases) in size.[129] As indicated in sub-section 6.3.2, this result is consistent with that found in Pebley and Goldman (1995) - a result based on data for Guatemala.

This result was confirmed when allowance was made for the possibility that the level of the quality of the household dwelling may be determined by a range of factors. The factors that are identified (see regression equation 6 in Table 7) were the combined level of schooling of the mother and the father and the occupation of the mother and father of the child (although the coefficient for the father's occupation was not statistically significant). Making use of this result to estimate the basic equation (but without household per capita income present), by making use of the two-stage least squares method, again the estimated coefficient for the quality of the household dwelling was statistically significant and of the right sign - as were the other estimated coefficients for the other variables in the basic model (except that for the gender of the child). That said, what the results in regression equations 5 and 6 in Table 7 suggest is that the level of schooling of the parents operates along at least two channels in the process of influencing the value of the h-scores of their children.

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129 Remember that the index of the quality of housing takes a smaller value the higher the quality of the family dwelling.

Table 6. First Extension of the Basic Model: Coefficient Estimates derived using the Huber-White cluster regression formula*

	Number of the regression equation		
	1 (OLS)	2 (2SLS)	3 (OLS)
Dependent Variables	H5	H5	LogPCapInc
Independent Variables constant	18.205 (41.84)	29.998 (4.09)	6.848 (13.04)
log of mother's years of schooling			0.558 (2.86)
log of father's years of schooling			0.074 (0.15)
log of mother's plus father's years of schooling	-2.870 (-4.15)	0.113 (0.04)	
age of child above three months	0.534 (2.08)	0.626 (3.65)	
age of child squared	-0.021 (-1.80)	-0.022 (-2.73)	
age of child cubed	.0002 (1.21)	.0002 (1.92)	
age gap between the youngest and eldest child in the household	-0.052 (-6.96)	-0.024 (-5.97)	
gender	0.260 (0.76)	0.973 (1.09)	
household with electricity			0.518 (39.00)
number of working members in the family			-0.034 (-0.56)
household which uses irrigation for farming			-0.090 (-1.10)
household owns land being farmed			-0.007 (-0.32)
log per capita income	-0.653 (-4.50)	-3.438 (-23.14)	
R^2	0.191	0.020	0.121
no. of observations	113	112	112

Note: All variables in brackets refer to the t-statistics corrected for heteroscedasticity using the Huber-White method.

Source of data: household survey questionnaires

Table 7. Second Extension of the Basic Model: Coefficient Estimates derived using the Huber-White cluster regression formula*

	Number of the regression equation					
	1 (OLS)	2 (2SLS)	3 (OLS)	4 (OLS)	5 (2SLS)	6 (OLS)
Dependent Variables	H5	H5	PCapInc	H5	H5	logHouse
Independent Variables						
constant	8.591 (7.00)	1.899 (0.82)	1532.79 (0.16)	8.779 (11.90)	1.502 (0.66)	1.979 (7.68)
log of mother's plus father's years of schooling	-1.832 (-2.06)		-7542.52 (-0.88)	-1.911 (-2.29)		-0.369 (-5.94)
age of child above three months	0.486 (2.88)	0.507 (3.16)		0.467 (2.52)	0.490 (2.84)	
age of child squared	-0.020 (-2.98)	-0.021 (-3.72)		-0.019 (-2.61)	-0.021 (-3.44)	
age of child cubed	0.0002 (2.20)	.0002 (3.08)		.0001 (1.72)	0.0002 (2.49)	
age gap between the youngest and eldest child in the household	-0.048 (-17.58)	-0.042 (-29.95)		-0.049 (-26.6)	-0.042 (-15.01)	
gender	0.332 (1.38)	0.218 (0.30)		0.058 (0.14)	-0.087 (-0.08)	
log quality of housing	3.170 (3.38)	5.988 (10.36)		3.336 (4.52)	6.757 (5.43)	
Per capita income	-0.00006 (-4.18)	-.00005 (-2.49)				
Father's Occupation			17069.93 (2.80)			-0.161 (-0.74)
Mother's Occupation			5315.16 (0.93)			-0.153 (-3.76)
R^2	0.231	0.203	0.139	0.213	0.172	0.234
no. of observations	115	115	115	115	115	115

Note: All variables in brackets refer to the t-statistics corrected for heteroscedasticity using the Huber-White method.
Source of data: household survey questionnaires

Turning to the independent variable, per capita income, as indicated earlier in the basic model the regression coefficient for this variable was statistically significant and of the right sign. Interestingly, however, when allowance was made for the possibility that household income per capita is influenced by other independent variables, it was found that the logarithm of the combined amount of the father's and mother's schooling was found not to be statistically significant. Rather the father's occupation was found to be significantly related to household income per capita (see regression equation 3 in Table 7).

The regression results relating to the third version of the basic model are set out in Table 8. These results do not contradict the earlier conjecture that when the main source of energy is not firewood, then this fact tends to lower the level of the h-score for young children - other things remaining the same. (See regression equation 1 in Table 8.) Similarly, if a refrigerator is present in the household, then this fact also appears to lower the level of the h-score for young children - other things remaining the same. (See regression equation 2 in Table 8.) Indeed the regression coefficients for both of these variables, when treated separately, were highly statistically significant. And this is so if household income per capita was included in either the logarithmic or the non-logarithmic form. These general findings do not seem to have been reported elsewhere in the relevant literature.

That said, when these two variables were included in the *same* regression equation, then these two variables proved not to have statistically significant coefficients. Thus multicollinearity seems to be a problem when both of these variables are included in the basic equation. It is not clear, therefore, how important each one of these two variables

(energy source and the presence of a refrigerator) is for determining the level of the h-score in a household.

Table 8. Third Extension of the Basic Model: Coefficient Estimates derived using the Huber-White cluster regression formula

	Number of the regression equation			
	1	2	3	4
Independent Variables				
constant	13.554 (7.40)	13.19 (4.29)	11.631 (8.78)	12.452 (10.89)
log of mother's plus father's years of schooling	-1.433 (-1.28)	-2.005 (-2.64)	-2.270 (-2.86)	-2.524 (-3.44)
age of child above three months	0.632 (3.50)	0.571 (2.48)	0.542 (4.21)	0.501 (3.11)
age of child squared	-0.025 (-2.90)	-0.023 (-2.40)	-0.021 (-3.70)	-0.020 (-3.07)
age of child cubed	0.0002 (2.03)	.0002 (1.70)	0.0002 (2.58)	0.0002 (2.09)
age gap between the youngest and eldest child in the household	-0.039 (-2.06)	-0.046 (-3.73)	-0.043 (-3.71)	0.046 (-6.36)
gender	0.289 (2.54)	0.498 (1.32)	0.528 (30.30)	0.668 (2.58)
main source of energy for cooking not firewood	-3.094 (-4.71)		-2.409 (-3.08)	
household with refrigerator		-3.754 (-5.83)		-2.911 (-5.50)
logarithm of per capita income	-0.557 (-5.12)	-0.272 (-1.26)		
per capita income			-0.00005 (-11.53)	-0.00004 (-95.65)
adjusted R^2	0.214	0.213	0.210	0.209
no. of observations	113	113	115	115

Note: All variables in brackets refer to the t-statistics corrected for heteroscedasticity using the Huber-White method.
Source of data: household survey questionnaires

Other variables were included in various regression equations that were not reported in Tables 3 to 6. These variables were: the age of the mother, the age of the father, the quality of sanitation and the time taken to obtain water from the nearest stand pipe. The relevant

coefficient estimates for these variables were found not to be statistically significantly different from zero. It is possible, however, that these variables are important for determining the level of the h-score for young children. However, possibly their particular influence is masked by the other independent variables allowed for, and indicated in Tables 5 to 8.

6.5 Conclusions

The present study confirms a result that many others have found; namely, that two of the variables that influence the level of the health status for a child (as measured by this child's h-score) in early childhood in a developing community are the level of formal education received by the mother and father of this child. Apart from these variables, the sum of level of schooling received by the mother and father has a statistically significant positive influence on the health status of young children. It is emphasised that the statistical results presented here suggest, however, that the main influence of level of education received by the parents on the health status of children seems to be an indirect influence. So for example, the education levels of the parents seem to have its greatest influence on the level of household income per capita, or the quality of the household dwelling. And these latter two variables, in turn, influence the health status of the children in the household. Once this indirect influence of the level of education received by the parents on the health status of young children has been allowed for, the level of education of the parents apparently has little or no direct influence on the health status of the children. This finding may just reflect, however, the presence of multicollinearity between relevant sets of variables employed in the basic model as represented in the regression results presented in Table 5.

Be that as it may, and since the multicollinearity problem cannot be easily circumvented (see Greene 1997: 423 - 4), as far as can be determined, and as indicated earlier, the main channels along which the level of the education received by the mother and father influence the health status of the children in a household in a developing country is an indirect influence. This would appear to be the first time that this has been demonstrated in the relevant literature with the use of econometric techniques of analysis. That said, this general matter has been described by Caldwell (1986).

As for the other factors that appear to influence the health status of young children, two of them are the level of household income per capita and the quality of the household dwelling. As indicated earlier, this latter variable is very seldom cited in the relevant literature. A similar remark can be made of the way in which the age of a young child seems to influence the health status of children; namely, with other things remaining the same, after three months of age the h-score for a young child, on average, tends to follow a non-linear asymmetric inverted-u shaped path.

Other factors that also are rarely, if ever, mentioned in the relevant literature, but which are identified in the present empirical study as beneficially influencing the health status of young children, are: (i) an increase in the age gap of the eldest and youngest child in a family; (ii) the use of electricity or natural gas instead of firewood as the main source of energy in the household and (iii) the presence of a refrigerator in the household.

Further research is required, however, to test the robustness of these latter four findings. Since only two communities were included in the sample, clearly more work needs to be done to test the sort of hypotheses considered in the previous sections. The most satisfactory testing of these hypotheses would consist of carrying out well designed controlled experiments to determine the influence of the particular independent variable of interest on the normalised height for age of young children. Such research is time consuming and expensive to perform, however. Nevertheless, given the importance of the results that are likely to be generated by such research, it would seem that a good case can be made for performing this type of careful research.

However, if the three results listed above prove to be robust once further testing has been performed, then these results would suggest a number of implications for public policy aimed at reducing well-being poverty in developing countries - and the Philippines in particular. In the instance of the influence of the age of a young child on its h-score, it is clear that a particularly vulnerable time in a child's life is in the period three to twenty-five months and possibly a little beyond. (This point has been noted by Martorell (1995: 19) and the references cited there.) Strategies need to be employed, therefore, to ensure that parents are aware that it is in this period of their child's life that the child faces the greatest danger from having their health status impaired - possibly irreversibly impaired. Also, government interventions that take the form of well-designed child nutrition and health care, or child health survey programs are likely to provide the special assistance required to ensure that children reach their potential. (Such a program that carefully links a preventive child health care system with a nutrition program is discussed in Binswanger and Landell-Mills (1995).)

As for point (i) listed above, it suggests that more public effort may need to be made to encourage parents to increase the spacing between the children they have. This increased spacing will raise the health status of the children that are born into the household. This observation, in turn, raises the whole issue of how best to reduce the total fertility rate in a developing community. This important matter is far too large to be covered in this chapter, however.

Various parts of the argument developed earlier suggest that there are social gains to be derived from some appropriate form of public action directed at improving the quality of the housing (and associated facilities) that poor households have access to. Precisely what form this public action should take to attain the socially best results equally is also a large topic and, therefore, cannot be investigated here.

As for reducing the level of indoor pollution in a community, this does not necessarily mean that some public policy should be directed at encouraging the replacement of firewood with electricity or natural gas as the main source of energy for households in the community. Nor does this research advocate that the government provide refrigerators to all households in the community. For communities in developing countries, these may be expensive policy options to implement. Alternative and more effective policies may be to inform households how to improve the ventilation in their dwelling and provide information to households that indicates the public health benefits to be derived from keeping food in a refrigerator. The effectiveness of such a program, however, almost certainly would be dependent on the level of basic

education to be found in the community and the level of access households have to electricity.

Finally, but not least, as emphasised in the introduction to this chapter increasing the normalised height for age of young children in a developing country fairly represents an improvement of the level of well-being in this community. The most effective way of achieving this presumably desirable outcome is not, however, by reducing the level of income-only poverty (which results by way of increasing the level of household real income per capita). This assertion is based upon the empirical results - albeit qualified results - presented in Tables 6 to 8. Rather, these empirical results, and the remarks made previously in this section, suggest that a more effective policy program would take the form of possessing a number of components - components that include reducing income-only poverty, increasing the level of basic education in the community, providing a well-designed preventive child health care program, improving the quality of housing and, if possible, increasing access to electricity and natural gas. In short (and drawing on the sketched definition of well-being poverty provided in the introduction) the developing community needs to attempt to reduce the level of well-being poverty as the most effective route to take to increase the normalised age for height of young children. Hopefully this conclusion is confirmed by future research.

Chapter 7
CONCLUSIONS

7.1 Introduction

Poverty remains as a formidable challenge for the Philippine Government. Despite the Government's various development plans, policies and programs from 1962 to 1997 that directly or indirectly addressed the plight of the poor, the number of Filipinos living below the poverty line is still substantial. Nevertheless, and as indicated in the introduction, while the latest (1997) Philippine Government statistics showed that the proportion of the population at or below the poverty line declined between 1985 to 1997, the World Bank data on head-count poverty (although less recent) showed otherwise. World Bank figures revealed that the proportion of the population below the poverty line was 52 per cent in 1985 and 54 per cent in 1991 (World Bank 1998: 197). Whichever figures are used, the point being raised here is that the successful alleviation, or better yet the eradication of income-only and well-being poverty (as defined in the main text) in the Philippines remains an elusive development goal.

To gain a better understanding of poverty in the Philippines and how it may be alleviated, this study initially considered if the objective of alleviating poverty is part of the system of justice agreed to in the Philippines. The reason for wanting to generate this information is that the authorities in the Philippines need to know if there is widespread support within the Filipino community for the setting of this social objective. As pointed out at the beginning of Chapter 2, if there is no

such support it seems reasonable to assert that any attempt to set up a poverty alleviation program in the Philippines would meet with little success. It was also pointed out that care needs to be taken in the methods used to generate this information so as not to produce misleading information. It is important that individuals are faced with the consequences of their decisions. To generate reliable relevant information, a quite different approach had to be adopted. Game-theoretic experiments were used to determine if diverse groups of Filipinos could arrive at a consensus in the selection of a principle of distributive justice. In these experiments the participants were faced with comparatively severe forms of economic uncertainty and threats of uncertain social, political, and/or economic consequences if certain decisions were not made. It turned out that the system of justice unanimously agreed to by all groups was the priority given to the elimination of poverty.

But what policies should be followed to mitigate this poverty? To be able to answer this question with any degree of certainty, attention first needs to be given to determining what factors contribute to communities in the Philippines experiencing different levels of poverty. In attempting to gain a better understanding of the causes of poverty it is expected that valuable insights can be derived as how to improve poverty-alleviation policies in the Philippines. This was the next matter this study considered.

Finally, the study attempted to determine what were some of the possible consequences of poverty, particularly on demographic behaviour and the health status of communities in the Philippines. The reason for considering this general issue is that the level of poverty may

influence the level of demand for children, health status to be found in the community and the mobility of individuals in the Filipino community. Changes in the level of this latter group of variables may, in turn, influence the rate of economic growth. If income poverty does have these consequences, then this fact demonstrates the need to alleviate poverty.

In addition, in the process of analysing the consequences of income-only poverty, insights were also derived as to how best to alleviate well-being poverty (as measured by such variables as life expectancy at birth). Specifically, in attempting to determine the consequences of income-poverty, the analysis indicated that well-being poverty can be reduced by increasing the levels of basic education, the provision of better quality housing and providing greater access to electricity.

The main findings relating to these broad issues are set out in the next section. In the final section attention turns to considering some of the policy implications that reasonably can be inferred from these findings.

7.2 Main Findings

The experimental results obtained in Chapter 2 indicate that groups of individuals, when faced with relevant types of uncertainty, are able to decide unanimously on a single system of justice in distribution. The system of justice decided upon is a version of Rawls' first principle of justice and the priority rule and Popper's principle of minimising

avoidable suffering - a decision reached by way of individuals being free to choose a system of justice from a number of alternatives (although a choice subject to various relevant types of uncertainty). The participants also explained their decisions in language which reflected that they have an understanding of the uncertain economic and social realities that they and members of their community face.

A further unanticipated insight derived from this study is that it indicates how a community with broad social values similar to those to be found in the Philippine community can reach a unanimous agreement over what system of justice should be applied in this community. How this level of agreement can be reached requires the replacement of a number of the conditions used to derive Arrow's impossibility theorem. Above all, members of a community need to be faced with certain types of uncertainty - the types of uncertainty that are comparatively prevalent in the Philippines. The relevant insights developed in this regard suggest that the findings presented in Chapter 2 make a useful contribution to political philosophy and social choice theory.

Now that the elimination of poverty has been identified as a (if not the) major issue of social concern amongst reasonably representative groups in Philippine society, attention next turns to determining some of the important factors that may influence the level of poverty in the Philippines. Chapter 3 analysed the possible causes of variation of the incidence of income-only poverty and incomes across the provinces of the Philippines using cross-section data in 1990 and 1991. Assuming all other things remaining the same, the analysis indicates that the incidence of land ownership, the level of sanitary toilet facilities and the proportion of non-agricultural workers in the labour force explains to a

statistically significant degree variations in poverty levels across provinces. In addition, these variables, along with the availability of irrigation facilities and being located in the island of Luzon were also found to be statistically significant in explaining variations in the levels of household incomes across the provinces. The regression results also indicate that the proportion of non-agricultural earners, in turn, is influenced by the level of access to electricity, the level of urbanisation, the rate of illiteracy, having an academic degree and the availability of paved roads. These latter econometric results suggest, therefore, that the links, or lines of causation between the independent variables and the level of poverty possibly are more complex than may be inferred from the results presented in comparable studies of poverty - studies that do not allow for variables operating in an indirect way, through other variables, on the level of poverty. So, for instance, at least in part, the level of education influences, indirectly, the level of poverty by first influencing the proportion of non-agricultural earners. This latter variable in turn influences the level of poverty in the various regions of the Philippines.

In deriving this latter result it should be pointed out that this insight was derived to some degree by accident. To explain this point, it was found that multicollinearity between various variables was a serious statistical problem. In the attempt to circumvent this problem to some degree, two-stage least squares was employed. The results obtained suggested, as just indicated, that the level of education has an indirect influence on the level of poverty in the various regions of the Philippines.

In contrast to the analysis presented in Chapter 3, in Chapter 4 use was made of micro data to determine, at the village level, the

possible links between the level of education, credit, deforestation and well-being poverty. Two diverse Filipino village communities were intensively surveyed and then focus group discussions were held with members of these communities. The baseline survey and the discussions indicate that there is a positive relationship between the level of education and well-being (as defined in Chapter 4). However, members of the less well-off community, compared to the better-off one, perceived fewer benefits to be derived from investing in education. Consequently, those households with better access to credit and basic infrastructure invested more in education. Also, households with no access to credit, and who had low levels of education and income relied more on the forests for their sustenance. The discussion in this chapter also indicated that the methodology employed (a combination of a survey of sample households and the conducting of focus group discussions) could be used more extensively to determine how best to design poverty-alleviation policies in any developing country.

Turning to the next set of issues concerning some of the consequences that flow from the level of poverty that exists in the Philippines, the discussion in Chapter 5 assesses the demographic and health consequences of poverty. Attention concentrated on determining if the level of poverty influences fertility rates, infant and child mortality rates, morbidity rates (resulting from water-borne diseases) and net migration in the Philippines. To determine the relationship between rural poverty and selected demographic and health variables, four regression models, making use of cross-section data, were examined. (As in Chapter 3, since multicollinearity was a serious problem, the Two-Stage Least Squares Method was used in the estimation of relevant regression equations.) The regression results indicate that the incidence of poverty

is found to have a significant influence on some demographic and health variables. For instance, with other things remaining the same, the level of poverty has a positive influence on infant and child mortality rates as well as fertility rates. The level of poverty has a negative influence on net migration. Poverty, however, was found not to have a statistically significant effect on morbidity from water-borne diseases. If these results prove to be robust on further testing, then they have policy implications of some importance. For instance, reducing (if not eliminating) the incidence of poverty in a province will tend to help as a subsidiary consequence in improving the level of health as measured, for example, by the reduction in the level of the infant mortality rate. Similarly, a reduction in the level of poverty will assist in the reduction in the fertility rate in the Philippines.

In Chapter 6, a multi-variate regression analysis was performed to determine what factors are likely to influence the normalised height for age of children in early childhood in rural communities in developing countries. The statistical analysis confirms a result that many others have found; namely, that the level of formal education received by the mother and father influences the height for age of their children. Apart from these variables, the sum of the level of schooling received by the mother and that of the father has a statistically significant positive influence on the health status of young children. The influence of this education, however, seems mainly to have an indirect effect on the height for age of the child concerned. So, for example, the level of education of the parents seems to have its greatest influence on the level of income per capita, or the quality of the household dwelling. These latter two variables, in turn, influence the health status of the children in the household. Once this indirect influence of the level of education

received by the parents (on the health status of young children) has been allowed for, the level of education of the parents has little or no direct influence on the health status of the children. As far as can be determined, this tentative empirical identification of the main channels along which the levels of the education received by the mother and the father influence the health status of the children in a household has not been demonstrated, empirically, elsewhere in the relevant literature.

There are other factors that are identified in the empirical study in Chapter 6 that appear to influence the health status of young children. Specifically, with other things remaining the same in the villages concerned, the following results were obtained:

- after three months of age the height for age of young children, on average, tends to follow a non-linear, asymmetric inverted u-shaped path;
- an increase in the age gap (as defined in chapter 6) of the eldest and youngest child in a family positively influences the height for age of a young child in this family;
- the use of electricity or natural gas, instead of firewood, as the main source of energy in the household positively influences the height for age of a young child in this family, and
- the presence of a refrigerator in the household also seems to have a positive influence on the height for age of a young child in this family.

That said, further research is required, however, to test the robustness of these latter four findings - findings that are not widely cited, if at all, in the relevant literature. The main weakness with the study reported in Chapter 6 is that the sample of communities surveyed is not

as complete as I would have liked. (Financial limitations prevented further surveys being carried out at the time (in 1997)). It is clear to me that more work needs to be done to test the sort of hypotheses considered in this chapter. Nevertheless, if the findings in this chapter prove to be robust once further testing has been performed, then these results suggest a number of implications for public policy in developing countries - aimed at reducing well-being poverty.

7.3 Policy Issues

Turning to the policy implications that may be drawn from the various studies reported in this conclusion, empirical evidence has been provided to support the high priority given by the Philippine government, as well as various sections of Filipino society, for the alleviation of poverty. The results of game-theoretic experiments carried out in the Philippines and presented in Chapter 2 demonstrate that pluralistic groups of individuals from a community whose members are well aware of the uncertainties that pervade the lives of the less well-off in their country can agree unanimously on a floor-income constraint system of justice. This system of justice, which is interpreted here as a version of Rawls' first principle of justice and the priority rule and Popper's principle of minimising avoidable suffering, is where all in the community are provided with a floor level of income, after which the community is left free to maximise the average level of income for all in the community. As pointed out in Chapter 2, if such a system of justice is implemented, then it removes one of the major uncertainties facing members of the community; namely, the risk of falling into destitution. As articulated by the participants of the game-theoretic experiments, for the community not

to mitigate this economic uncertainty to a reasonable degree would contribute, in an important way, towards precipitating political and social instability.

In addition, and as pointed out at the beginning of Chapter 2, fundamental to a poverty-alleviation program being successfully implemented is that such a program receive wide community support. And this support is given within the context that all in the community are aware of all the major consequences that flow from the implementation of such a program. That the empirical results presented in Chapter 2 suggest that such a program would receive such support, and within such a context, implies that a well-designed poverty-alleviation program has an improved chance of success (compared to a situation where such a program did not receive wide community support).

Policy implications also flow from the results presented in Chapter 3. If the results derived from various regression equations turn out to be robust after using improved data sets, then this implies that increasing the proportion of households: who own the land that they till; are working outside of agriculture; have access to electricity; and receive a relatively large amount of basic education will raise the level of average real incomes for these households. These changes will also contribute to reducing poverty since the higher the level of average household incomes or per capita income in a province, the lower is the incidence of poverty in the province concerned.

The regression results presented in Chapter 3 also strongly suggest that a reasonable way of reducing the level of poverty and raising real incomes per capita at the provincial level in the Philippines is

to improve the supply of a range of basic infrastructure. This basic range of pieces of infrastructure refers to:

- basic education directed at reducing functional illiteracy;
- electricity for household and manufacturing purposes;
- irrigation to increase farm yields;
- paved roads to improve mobility and transport of produce;
- basic preventive health care, as represented by the provision of sanitation facilities and;
- credit systems to finance the purchase of complementary farm inputs such as seeds, fertilisers, pesticides, tractors and water, as well as to smooth out household income streams.

The provision of an improved supply of basic infrastructure in the Philippines is also a policy implication that may be inferred from the analysis presented in Chapter 4 where use was made of data at the village level. The study indicates that in the circumstances that poor, isolated communities are faced with in rural Philippines - communities that do not have access to a range of basic pieces of infrastructure (such as all-weather roads, electricity, a safe water supply and a preventive health system) - there apparently are few social, or private benefits to be derived from increased expenditures on subsidising the formal education, credit systems and investing in reforestation programs in such communities. The reason is that synergisms appear to operate or a degree of complementarity exists between a number of elements that make up a basic system of infrastructure for such communities. Thus the increased provision of any individual infrastructure system (such as expenditure on improved school facilities), without the other elements

also being increased in size, probably contributes comparatively little to increasing the level of well-being for the community concerned. In contrast, increasing the level of the supply of a number of complementary types of infrastructure is likely to result in the marked improvement of the level of well-being of poor Filipino families.

Another important policy objective that may be inferred from the findings presented in Chapter 4 is that of increasing the level of access that income-poor parents in developing countries have to the formal credit market system. This greater access to the formal credit market will allow these households to be in a better position to mitigate, probably *ex post*, the variability of income streams. This consequence, along with the increased availability of credit, presumably also will result in parents investing more in the education of their children.

Turning to the matter of the consequences that flow from the level of poverty that exists in the Philippines, the regression results presented in Chapter 5 have policy implications of some importance (that is if proven to be robust on further testing). For instance, reducing, if not eliminating, the incidence of poverty in a province will tend to help as a subsidiary consequence in improving the level of health status in this province - as measured, for example, by the reduction in the level of the infant mortality rate. This latter improvement, along with the reduction in the level of poverty, will also assist in reducing the total fertility rate in a province. The findings in Chapter 5 also suggest that addressing rural poverty will tend to discourage people from migrating to the cities.

If the regression results presented in Chapter 6 prove to be robust after further testing has been performed, then these results also suggest

a number of implications for public policy in developing countries. The policies are briefly summarised, as follows (for a detailed discussion, see sub-section 6.5):

- Strategies need to be employed (possibly in the form of information dissemination schemes) to ensure that parents are aware that it is in the period three to twenty-five (25) months (and possibly a little beyond) of their child's life that a child faces the greatest danger from having their health status impaired - possibly irreversibly impaired. Also, government interventions that take the form of well-designed child nutrition and health care or child health survey programs are likely to provide the special assistance required to ensure that children reach their physical potential.
- More public effort may need to be made to encourage parents to increase the spacing between the children they have. This increased spacing is expected to raise the health status of children that are born into the household.
- There are social gains to be derived from some appropriate public action directed at improving the quality of housing (and associated facilities) that poor households have access to. (Precisely what form this public action should take to attain the socially best results equally is a large topic and therefore was not investigated in this study.)
- Health programs may include informing households on how to improve the ventilation in their dwelling and providing information to households on the public health benefits to be derived from keeping food in a refrigerator. The effectiveness of such a program, however, almost certainly would be dependent on the level of basic education to be found in the community and the level of access households have to electricity.

- A more effective policy program of increasing the normalised height for age of young children in a developing country would take the form of possessing a number of components - components that include reducing income-only poverty, increasing the level of basic education in the community, providing a well-designed preventive health care program, improving the quality of housing and increasing access to electricity and natural gas.

Annex 1
(Chapter 2)

SELECTED TRANSCRIPTS of FOCUS GROUP DISCUSSIONS
Diverse Groups of Filipinos Deciding on a System of Economic Justice

Executive Summary

Participants

A. STUDENTS IN METROMANILA

B. STUDENTS OUTSIDE OF METROMANILA

C. GOVERNMENT EMPLOYEES IN METROMANILA

D. GOVERNMENT EMPLOYEES OUTSIDE OF METROMANILA

What is a just distribution of income where, in the individual situation, individuals are faced with considerable uncertainty as to how much income they will receive in the future? Given different principles for income redistribution what rule will Filipinos support? If there are trade-offs, what form will they take?

The results of the group discussions revealed that Filipinos do reach a unanimous agreement on a single system of justice in distribution. It was observed that in cases wherein the participants in the group discussions took their time to discuss the advantages and disadvantages of each principle of income redistribution, the group arrived at very interesting insights on the concept of distributive justice. On the other hand, when the group members hurriedly discussed and decided on a principle of justice, there was very little understanding gained from the exercise.

All the groups supported a principle maximising the average income subject to a floor constraint. The system of justice decided upon is a version of Rawls' first principle of justice and the priority rule and Popper's principle of minimising avoidable suffering. Majority of the participants were concerned that everyone in the society received a minimum income or an income which does not fall below a set level. The arguments for the selection of a floor constraint principle include basic consumption or survival, security, self-esteem, incentives for productivity, and personal as well as societal stability. The concern for stability of income, particularly of the least advantaged sectors of the society, and its perceived linkage with political stability is consistent with Rawls' (1993) theory that the two are interlinked. Some groups also expressed their concern that the level of the floor constraint should not be a fixed amount and should be adjusted according to the cost of living and the capability of the government to provide everyone of its working age population a minimum amount of income. Some of the participants pointed out that the floor constraint should not be set at a very high level to: (i) maintain the incentive to work; (ii) cover more low income people; and (iii) avoid a possible inflationary effect.

Enclosed are some of the transcripts which were taken from the full report. The full transcripts are available upon request.

Male Voice 1: So, I would like to get the preferences of the group.
Female Voice 1: Wait.
Female Voice 2: C for me?
Male Voice: C?
Moderator: Why?
Male Voice: And subject to what floor constraint?
Female Voice 2: Do I have to say what is my floor constraint?
Moderator: Yes, but let us listen to why you chose that rule first.
Female Voice 2: Based on reality?
Moderator: Say on a monthly basis for an individual.
Female Voice 2: I have no idea. A floor constraint? Maybe, 50,000 pesos. (Laughter)
Male Voice: That's too high. (Laughter)
Female Voice 2: Okay. Ten thousand pesos?
Moderator: Note that when the floor income is high that amount will have to be provided by those who earn more than the floor.
Male Voice: So, 10,000 pesos?
Female Voice 2: Oh yeah, does that mean everybody has a job?
Male Voice: Not necessarily.
Female Voice 2: Majority or all?
Male Voice: We consider all. The floor should be provided to all and at the same time we maximise the average.
Moderator: How about the others? (Laughter)
Female Voice 3: A, perhaps. We maximise the floor. So that for the poor, this would be the lowest income they would get. So, we set a specific amount...is that right? For example if the floor income is set at a very high level, the rich would not be upset. That is, if you want to be rich then you could be rich but let us take care of those in the low income bracket. Is that right? Do I make sense?
Female Voice 4: Me, I like B. Not pure equality but the disparity should not be too wide.
Male Voice: When you speak of a wide disparity then the income of those receiving high incomes are very high and those receiving low incomes are really very low. So, when you speak of a disparity that is the range and not the average. The average amount may be a big amount but the disparity is the range between the highest and the lowest amount which may be big. For instance, if there is a person who earns one million pesos a month and another who earns 1,000 pesos a month, then the average income of the two is around say 500,000 pesos a month. The average income doesn't show that one is receiving 1,000 pesos a month.
Male Voice: So, do you still prefer B?
Female Voice 1: Same as her, I like C. If you have a floor, everybody has the same floor income. As to the amount at least 10,000 pesos for food, groceries and for some, housing.
Female Voice 3: Isn't it that the floor is for those receiving the lowest incomes only and not necessarily all?
Female Voice 1: The floor income is not the same as the floor constraint. By maximising the floor income, you raise the incomes of those receiving the lowest income in the society. The third rule maximises the average with a floor constraint, that is, you want to ensure that no one falls below a certain income level.
Male Voice: Me, I chose B. (Laughter) Because it is the easiest to compute I guess and there is a chance, the highest chance, that you will get the biggest monetary pay-off. Because it is the average. The chances are that you would fall in the median and you would get a larger amount. So, there are two Bs, two Cs and one A. Let us all choose B. It is the easiest to compute. (Laughter)
Female Voice 3: I suggest you all choose A. (Laughter)
Male Voice: C, you see is difficult because it is hard to determine the floor constraint. In B, okay, you maximise the...For the average income...there is a term for that in economics, it is called per capita, I think.
Female Voice 2: For C, there is a floor constraint such that all will be able to earn that amount.
Moderator: Why? What makes you say that everyone must have this minimum amount?
Female Voice 2: For security.
Female Voice 1: For example, we all receive 10,000 pesos then all of us are sure of a 10,000 peso income. If there is more, then that is good. What is important is that there is an assured amount. Isn't it

that if we choose to maximise the average income this would all depend on probability when you draw a piece of paper from a bag? For example, when there are so many of you in medium low, you will get a relatively smaller amount than when you are in the high income class. Am I right? Unlike for a certain category we will all get 10,000 pesos then even if we get other incentives, we would all get the basic which is my starting point of 10,000 pesos.
Female Voice 2: In my view, C is more applicable because there are really so many poor.
Male Voice: However, don't you realise who will bear that amount? For example, the 10,000 pesos...the minimum floor constraint of 10,000 pesos. Who is going to bear that? It is either that...for example, the Metro-Aides they get 10,000 pesos a piece minimum. Right? So, who will bear that? Say, the government but eventually it will be borne by the whole society also through taxes. So, eventually, it will also be borne by taxpayers or if not that, say, by our generous businessmen. They will have to subsidise those Metro-Aides. But you see the businessmen will not agree such that when it falls on the community as a whole for example in the form of taxes, it will just be like you are making someone better- off at your expense. So, perhaps it would be best just to maximise the average income, because that way you only look at per capita income. Per capita income is an economic indicator. So it is said that a country is really well-off, if its per capita income is above a certain level. So, on the average, the economy is doing this much because it doesn't say that there are no poor people but we are saying that the income is at a certain average level.
Female Voice 1: You are from the School of Economics, am I right? (Laughter)
Male Voice: Because even if you say a minimum of 10,000 pesos, it is not possible. If you say a minimum of 10,000 pesos you know what will happen? There will be many who will lose their jobs. For example, the businesses, they cannot afford that. For instance, the minimum is 3,000 pesos, they can accommodate so many. For example, the five of us they can accommodate us because their budget for their employees is 15,000 pesos. If we ask for 3,000 pesos a piece, they can accommodate the five of us. Now, if all of us asked for 10,000 a piece how many could they accommodate? Only one which means that the four of us will be laid off or will be out of work and only one will benefit. So, it is more equitable this way because all of us will have jobs rather than just one of us getting a job. So, it is really so unrealistic to say that there is a minimum. That is why we are targeting in economics a minimum wage because if the minimum wage continues to go up the businesses simply cannot afford it. They would rather look at other factors of production. So they turn to machinery and stuff. Because it would be too cheaper that way when the labour costs are increasing. It is really unrealistic. Of course, it is the best situation for all of us to earn 10,000 pesos a piece but looking at it in reality it could never happen because the businessmen will not agree. If it is borne by the public then it is not a different kind of...you should get a salary that you really deserve.
Female Voice 2: Your point is from the business side. Because, say if the businessmen cannot accommodate, why is it that they are called millionaires? They are earning a huge amount of money. Why don't they share their money with others? Their huge incomes are due to the people who are working. Without other people, how could these businessmen earn? Isn't it? Say you have these machinery? Who makes these machinery, anyway? Isn't it that it is the people also? Who operates these machinery? People. So, you have to take people into consideration. You said that when the floor constraint goes up the businessmen cannot afford it so they lay off workers. So, how about us? The floor constraint should consider the prices of goods. Otherwise, people will leave the country to cope with the cost of living. At least, if you have a floor constraint, then there is a sure income for every month and the person will feel more stable. For Filipinos, security of tenure is very important and security in itself. Isn't it?
Moderator: Why do you think it is important?
Female Voice 2: I don't know. I just observed that there is the SSS [Social Security System], the GSIS [Government Service Insurance System] that people apply for. For accidents, you have to have some money. Some people are also becoming more materialistic and that would be a big help.
Moderator: If you don't have this feeling of security what happens?
Female Voice 2: If you don't have this feeling of security what happens? Panic! You will panic. Isn't it that when you do not have money, you have a big problem? (Laughter) Shit, I don't have money! So, that is what happens to them. They will resort to borrowing and everything. For me, it is better to be sure that you can get some money somewhere when you need it.
Moderator: So, what do the others think? What can you say?
Female Voice 4: Okay, now I want C. (Laughter)
Female Voice 3: Just like what I said earlier everybody has a right. When you are rich it is your right to be rich because you worked hard for it. However, even if you are rich you do not forget the poor. So....
Moderator: What did you choose? Which principle?
Female Voice 3: A -- maximise the floor income. Let us not forget the...for example, in the U.S. [United States] the poor are not as poor as those in the Philippines because their maximum floor income...their poorest are perhaps already our middle class. But the richest in the States continue to be rich.

Moderator: What can you say about your other group members' arguments such as the security issue? The choice should be unanimous so what are you more inclined to support? C or B? Floor constraint or maximising the average income?
Female Voices: C (Laughter)
Male Voice: Choose B.
Female Voice 3: Why don't you all choose A? (Laughter)
Male Voice: Choose B and I will give you jobs.
Female Voice 3: What did you ladies want?
Female Voices: C.
Female Voice 3: My next choice is C. (Laughter)
Male Voice: Okay, so C wins it. So, C.
Moderator: If C, what is your floor constraint? What level? It was already mentioned in the discussion that you think 10,000 pesos is too high. So, for an individual to meet his basic needs to be able to live comfortably? Just enough for the person.
Male Voice: Five thousand pesos.
Female Voice 1: Five thousand pesos.
Female Voice 2: Six thousand pesos
Female Voice 3: For casuals?
Male Voice: Three thousand pesos.
Female Voice 4: Four thousand pesos.
Male Voice: Not too low nor too high. Or else there will be people who lose jobs and so let us maximise the average income. The salary they get is what they deserve. It is what they were able to work for. That is what they could reach so why give them more?
Moderator: So does everybody agree with 3,000 pesos?
Female Voice 2: Four thousand pesos. Well, okay, 3,000 pesos.
Other Voices: Okay, 3,000 pesos.

END

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Male Voice: Okay, let us start. Maybe, after reading the paper we realised that this is the first time we encountered some terms used here -- these principles for distributive justice. How about the others? Is this the first time you heard these terms?
Other Voices: Yes.
Male Voice: We are all the same in that respect. Even if we are not very familiar with these principles, which principle do you think you could relate with or is applicable in your situation. You?
Female Voice 1: Maybe we should rank each of them and see if we have the same ranking.
Male Voice: How did you rank?
Female Voice: One by one.
Male Voice: Okay, so who chose A?
Female Voice 2: Me.
Male Voice: I also chose A. So, who chose B?
Female Voice 3: Me.
Male Voice: Who else? C?
Female Voices: Me.
Male Voice: Three. So, what is C? That's...
Female Voice 3: With a floor constraint.
Male Voice: Since the three of you selected C, why did you choose that?
Female Voice 1: Because C is when you say that this amount and no income should go below that and you also consider the average. I don't know. I just feel that the distribution is more just that way. But, how about you first?
Female Voice 4: As you said earlier there is a floor constraint for the income. At least by that we are assured that...because my idea of justice is that it should be equitable. That first and we should also consider how much your work, and the time, and your labour, are tantamount to what you earn. It is good if there is a set minimum wage. That's my idea here, a floor constraint wherein the income will not fall below that level. It will be determined based on a feasible amount that will allow a family to survive in an area. So, if 8,000 pesos will allow a family to live then that will be the floor constraint. No income should go below that amount of 8,000 pesos. That's it.
Male Voice: But for your choice, Principle Number three with a floor constraint, isn't it that you should consider inflation, standards of living, for example, prices of commodities which are increasing? If you have a constraint in the distribution of income it is as if you have a limit or a bottom line -- a minimum amount that you would give to the poorest in the society. What if...your tendency is if you were the one

to be taxed, your tendency is to accumulate more property or more money so that you can pay the taxes. What about that and considering inflation?
Female Voice 3: I think you are referring to the range constraint.
Male Voice: Isn't it that in setting a constraint you are assigning a value, a level in which no member of your society will receive lower than that amount? Isn't it?
Female Voice 1: When you maximise the average with a floor constraint you are considering the income of the poorest of the poor. That is, I think the very essence of justice. The poor, regardless of whatever income the highest or the middle class receives, at least the lowest level could be helped. At least, they feel secured. They won't worry that even if there are those who are very, very rich and at the same time or simultaneously there are those who are very, very, very poor. What makes a floor constraint necessary is to make people feel secured.
Female Voice 4: As to the issue of inflation, when you set a floor constraint, this should be subject to...you should study first...when prices vary. Because we do not know how inflation will be linked to the floor constraint and to the other principles in there. That is why my idea there why I chose number 3 is that it varies depending on what would allow a family to survive.
Female Voice 2: But, in number 3, there are other incomes above the chosen floor which are taxed at the same percentage rate so that tax revenue... Are they the same as far as taxes are concerned? If your income is higher than the average will you be taxed at the same rate? Shouldn't it be that as your income increases, the tax rate should also increase? That is why I did not choose number 3. For instance, in the case of Lucio Tan, he has a lot of income. Say the tax rate is 1.5 per cent and the average monthly income is 1 million pesos than all of us above the average will be taxed the same way. I don't think that is good. That is why I chose A. Since more than half of the Filipino people are below the poverty line so I thought of principle A because in a society you have to give priority to the majority -- those below the poverty line so we have to maximise the floor income. I do not believe that when very rich people are taxed by the government they tend not to work any more. For example, will you allow your business to get bankrupt because you do not want to be taxed by the government? People who pay huge amount of taxes still work.
Female Voice 4: The problem with what you are saying is that they will be discouraged to work but neither would they be encouraged to go beyond what they should be doing later. They will only work to a certain level because beyond that the government will get. So there won't be anyone to finance the additional income needed.
Female Voice 2: If there are some people at the high income level who do not want to work any more then there are still many people who will strive and work more. There are poor people because there are rich people.
Male Voice: Besides, the key word here is justice. What constitutes justice in a situation which allows that set-up to be spared where the rich can adapt? It is easy for the rich to adapt in a system of taxation where there is a floor constraint. Even if you deduct money he could adapt because he has available resources.
Female Voice 4: In a sense your principle is just for the poor but not for the rich.
Female Voice 2: I read in the Philippine Constitution that in our tax system in appropriating money the poor should be given first priority.
Male Voice: When you say justice the principle should reflect the interest of the majority, isn't it?
Female Voice 2: And since there are a lot of poor....
Male Voice: In the first place, why are there rich people? That is a by-product of the fact that there are other people who are poor. Those income that should go to the poor goes to the rich instead. Isn't it? If that is not the dynamics of it, then why is it that the income which ought to go to the poor are with the rich?
Female Voice 1: You can still get rich but not at the expense of the poor.
Female Voice 4: If you look at this issue ideologically our ideas will clash because we have different values. If our basis is the point that the rich can adapt, I don't think...
Female Voice 1: Because if it's the same percentage, say 10,000 pesos and 5,000 pesos then we take out 20 percent from each, won't that be equitable?
Female Voice 2: So how about the incomes of the rich?
Female Voice 1: So you still want to reduce their incomes at a lower level? So what will their incentive be?
Female Voice 2: If you tax only a few people with so many poor people, the income won't be enough. So we would have more taxes.
Female Voice 4: I think that it would be all right if our objective is to make all incomes equal. That would be difficult.
Female Voice 2: No, I am not saying that. The resources are just not enough.
Female Voice 1: What you are saying is that in our situation there are so many poor people that if we adopt the third principle the amount that we would get if we distribute it would not be enough.

Female Voice 2: Yes. that is why when you are rich there should be a higher tax rate imposed on you. For instance, 10 per cent of one million pesos, 15 per cent of five million pesos. An increase of five per cent from one million pesos to five million pesos would give you more resources. But let us check...
Female Voice 4: In reality could that be done?
Female Voice 2: That is the law. Theoretically, it's up to the BIR.
Moderator: We are using the Philippine context here. You have to generate tax revenues to help certain groups in your society. If you want to subsidise the poor then you have to get the money from somewhere. How about the marginally poor? For A, you are helping those in the low income class.
Female Voice 2: I thought that the low income group are just one group. So, we have high, middle, and low. Now I realise that among the low there may also be other levels.
Moderator: So, now we have two As, one B, and three Cs. So, what do you think?
Female Voice 3: In my case...Have you had Social Science 2 already?
Other Voices: No.
Female Voice 3: A philosopher, I forgot who, once said that the concept of justice is such that whatever your income is should be based on how much work you put in. So, by maximising the average, as stated in the handbook, we assume we are giving everyone as much incentive to produce as possible. There will be no redistribution and hence, no taxation. My understanding of this is that your salary should be equal to whatever effort you gave. I think in principles A, C, and D you are being taxed when you should not be taxed. I think that is unfair. If I earned, for example, 10,000 pesos only and I was taxed 20 per cent, why should I subsidise you the poor?
Female Voice 1: But there is, say labour. What you are saying is that whatever effort you give in you should be paid accordingly. But usually when you have menial labour or work you usually think why is it that I receive very low when I worked long hours and I toiled the field. Why did I only get ten pesos? So, if you were a common *tao* (human being), you would say it is not justified. However, the work you did was mechanical. You didn't use much mental effort. There was not too much process. It is difficult to value labour, if we look at it from what we think should be its right value. That should not be the case. For example, you swept the floor and you covered a big area. But you only swept the floor. That's one type of work only. For the person who offered his labour, that would hurt him because of the opportunity cost of sweeping the floor which he would have used for doing something else. He might have earned more. That is the problem with giving a value to that.
Female Voice 3: Why should we give low incomes to that type of work?
Female Voice 1: No, it's not that.
Female Voice 3: For example, we work equal hours a month. For instance, I am a Metro-Aide and you are an executive. We both work eight hours a day. Why is it that...for me, if we work equal hours, no matter work you did should not affect what you will earn.
Female Voice 2: His wage is so low compared to the executive who only sits in his office so...
Female Voice 3: The more so that the salary of the executive who does not do anything should not be high because he did not earn his salary.
Female Voice 2: Yes, his salary is more than the effort he gives to the job. Why?
Female Voice 1: Differences in the salaries have a value. Probably some people make mistakes in forecasting their salaries. Their transaction costs in getting those jobs are high. And demand...
Moderator: Why is it that there are differences in the salaries of all those who graduated together? Or why is it that not all of us graduate? What factor(s) cause(s) this? Some do not even finish high school or elementary school. When we are born there is some element which does not put us in the same footing. What is that?
Female Voice No. 4: Culture? Culture-bound?
Female Voice 2: Our level of intelligence is not the same. To some degree our productivity, too. So, if your level of intelligence would...
Female Voice No. 2: Say that our level of intelligence for a particular point is like this. Of course, if you are born poor and the other was born rich both would be able to develop skills even if their level of intelligence is not the same. The poor would be constrained...
Female Voice 2: When you are born, people are not equal already.
Moderator: That is what we call as 'accidents of birth'. When we are born, we did not choose to be born poor, or in the middle class, or rich. Others, even if they were born poor, they overcame their plight through sheer hard work. However, he had to contend with the fact that he had a few resources. This will affect his ability to earn. So, if we relate this to the principles of justice that we are discussing, then what may be the effect of 'accidents of birth'?
Female Voice 4: If a child were born in a squatters' area, he would choose A.
Male Voice: I am part of A.
Female Voice 4: You would choose A definitely.
Male Voice: You would not choose C with a floor constraint.
Female Voice 3: You could choose C too because you would also benefit from it.

Male Voice: If you look at all the principles, the poor would benefit anyway.
Female Voice 3: What if he was marginally poor?
Female Voice 2: The poor will benefit from number 3 and the rich from number 2.
Female Voice 4: Let's adopt C. Anyway, the same tax rate will be imposed on everyone. Twenty percent for all above the floor constraint for them to sustain the floor constraint. The same percentage rate not amount. There is an incentive.
Moderator: How about the range? Why didn't you discuss the principle with a range constraint?
Female Voice 2: We have not tackled it.
Female Voice 4: Because I don't want to tackle it any more. (Laughter)
Female Voice 2: Actually, initially it was my first choice.
Moderator: For instance, the gap between the richest and the poorest should not exceed two million pesos. That is your policy. What do you think?
Female Voice No. 2: It is not feasible. For some people their income is only 5,000 pesos per month and others two million pesos. It would not be possible to make them close such that their difference should not exceed a certain amount.
Female Voice No. 4: On the issue of punishing them for that, I think implementation of that policy would be difficult. I think it would be cruel.
Female Voice No. 1: For those with a floor constraint, you could help them who worked to receive a minimum wage. If you work eight hours a day you will receive a certain amount. My understanding is that in maximising the average because there is no taxation, you cannot get this minimum income. You tax some groups to subsidise other people when you have a floor constraint.
Moderator: So, what is the group's choice?
Male Voice: I still want to maximise the floor income.
Female Voice 4: Then what if we propose an alternative principle to the four?
Female Voice 2: In A, isn't it that in our SFAP [Scholarships and Financial Assistance Program]...I have a friend who is not needy at all because their income bracket is high and she pays a little only. It seems you can fool the system. I don't know. Some are studying at the expense of others. Isn't it?
Male Voice: I don't know. Maybe it's a kind of upbringing or my background. I don't believe in it, really...
Moderator: In what?
Male Voice: In C.
Moderator: Why?
Other Voices: Why?
Male Voice: I think that it is not right.
Female Voice 2: Gut feel?
Female Voice 1: Sort of.
Female Voice 4; But as policy-makers, we should...
Male Voice: Yes, yes...
Moderator: What is the difference between A and C?
Male Voice: For one thing in A you are considering the worst-off. I think that you should consider the worst-off, isn't it? Not those in the middle class. Because if you look at it from our side, who are the destitute among us? Majority are the peasants because our country is agricultural. From experience, whatever wealth our country has comes from the products of peasants and workers.
Female Voice 2: I don't think that they are the worst-off in the society. The worst-off are in the urban areas...in the city.
Female Voice 2: In the poverty line, we should also include those in the rural areas.
Male Voice: The perspective that the worst-off are in the shanties is wrong because the wealth of the country comes from the productive forces.
Female Voice 2: Why, do those in the shanties not plant?
Male Voice: That is my point. They do not plant.
Female Voice 5: What is the worst-off group?
Male Voice: What is the work of those in the squatters' area? They are also labourers.
Female Voice 2: At least they work. The worst-off are those who do not have work. They just stand by. (Laughter)
Male Voice: But no, because...
Female Voice 5: Whom do you want to help, the farmers or the...
Male Voice: The majority in our society, isn't it?
Female Voice 5: Who are really worst-off? Can you define what you mean by the term?
Male Voice: Those in the bottom. For example...
Female Voice 4: Who, the farmers?
Male Voice: Of course, they are the majority.
Female Voice 5: Are they really the worst-off group? I don't think so.

Female Voice 4: My idea of worst is those who work ten times but who can afford to eat only once. Or even work 100 times and eat only once.
Male Voice: It is really the peasants.
Female Voice 4: No, it is not them. There are more worst-off people than them.
Male Voice: Peasants and labourers. It just so happened that in our society they are also the majority. Don't you see that?
Female Voice 2: He is anti-rich.
Male Voice: No, I am not anti-rich.
Female Voice 4: It is not an issue of being anti-rich.
Female Voice 2: Are you anti-people?
Male Voice: Again, I am not anti-rich. This is not a fight against the rich only. You should not direct your fight to the person but to the whole system.
Female Voice 4: But that is what you are doing. If you say worst-off, there is a certain group which you do not consider also. What of those in the medium low? The marginally poor?
Female Voice 2: I really thought that there were just three levels -- high, medium, and low. The low income class would include those in the medium low.
Male Voice: The medium low or middle low...
Female Voice 2: I was thinking the low income class might be too dependent. Others say that the poor when they already have money they are already contented so they might not work any more. But if you give them just a little, maybe that would be okay.
Female Voice 5: At least if you work that would ensure that you would get something to survive based on a minimum standard of living. If their incomes are not enough, then the government subsidises. Maybe, they won't complain any more. I think that is feasible.
Other Voices: Yes, so four for C.
Male Voice: Let us go back to the concept of 'accidents of birth' - wherein a person is not sure if he would be born poor. In C where there is a floor constraint, you still maintain the same social stratification. In other words, this means that you still have the rich people and the poor people. Even if you uplift the standards of living of people, you still have half of the people rich and half of the people who are poor. But when you reach that stage that you are only giving cosmetic surgery to the poor. In the eyes of the poor they are still poor. Even if you say that the income that they get or their subsidy came from the rich, they are still poor.
Female Voice 1: At least, if that is what happened their situation improved. That's okay, isn't it?
Male Voice: Who wants to be poor for the rest of one's life?
Female Voice 5: It's up to...Okay, you speak first.
Female Voice 2: What you are saying is that even if the situation is more okay, the person is still poor. You are down-grading them. So, what if they are still poor, at least they live okay.
Male Voice: Because knowing that they do not deserve that.
Female Voice 5: Why are you saying that they don't deserve that? They worked for it.
Male Voice: Okay, justify to me why the rich deserve to be rich. For instance, the capitalists who have the buildings constructed, whose labour do they utilise? He provides the investment but who builds the structure itself? If there were no labourers...
Female Voice 4: Okay, let me ask you something. Let's say, we are policy-makers here and what we are trying to do here is to come up with a taxation policy or income redistribution policy that is equal.
Moderator: Fair or just.
Female Voice 4: I mean fair or just. Okay, just. So, what is your idea of a just society? Because if your idea of a just society is equal where there is no rich nor poor then it is difficult to come up with a policy. I cannot think that way. It's ideal.
Female Voice 1: If you made all people equal, then who will build the structures?
Female Voice 3: You can still come up with a policy. Even if you were rich or poor, you have to work also.
Female Voice 4: If you say an individual can only do this type of work where is the motivation there? What if you give the poor a chance to improve the quality of his life? Or maybe the poor becomes worst-off? You are giving way for development. The poor when he knows he is poor will work hard to improve his standard of living. Rich people, on the other hand, are interested to secure their wealth. This means that everyone has a purpose in living.
Female Voice 2: To attain equilibrium, assure a person quality living where he won't die nor suffer. Just right. Everybody should be that way. If he could attain that, then subsidise the person. And how do we subsidise, then we tax.
Female Voice 4: The taxation would still be just because if you are rich you can afford to pay 20 per cent to 30 per cent of your income.
Female Voice 2: I don't think we could convince him because he just doesn't want to listen.
Male Voice: Let's not go to the nitty-gritty but I can see a loophole in C.

Female Voice 4: What loophole?
Male Voice: I cannot pinpoint exactly.
Female Voice 5: If you cannot tell us the loophole and it is the most probable then that's okay already. Your opinion is just gut feeling and you cannot explain your basis.
Male Voice: If you see the people around you, the way they suffer...
Female Voice 2: They won't suffer under C, isn't it? Because you are giving them a minimum wage.
Moderator: As policy-makers, you will adopt a policy which you will ensure that it is implemented. For C, what would you have to ensure to capture his concern?
Female Voice 4: You will ensure that the taxation is implemented and you can subsidise those who need to be subsidised. And the floor constraint...the level should be such that the family would be able to survive.
Moderator: What feature should the floor constraint have to capture his concern about the worst-off and her concern about incentives?
Female Voice 2: On the floor constraint, you should check it as to the inflation rate.
Other Voices: It should be adjusted.
Moderator: Should it be high or low?
Female Voice 2: It should not be too high.
Female Voice 4: It depends on the situation.
Female Voice 1: It would allow people to live and cover their needs. Food, clothing and shelter, for example.
Female Voice 2: Also their health.
Female Voice 1: And education.
Female Voice 4: A decent living which is sustainable.
Moderator: So what you are saying is that your floor constraint will cover the basic needs of everyone -- that you guarantee such a minimum income and beyond that it would be up to the person?
Female Voice 4: Basic and security. I think it is hard to say basic needs only without security. It would mean you cannot sustain your basic needs.
Moderator: Could you elaborate?
Female Voice 4: Health and education. You need that later. Basic is just food, clothing and shelter but with security at least their options would be maximised.
Male Voice: Coming from the perspective that we are acting as policy-makers, I can now see the loophole.
Female Voice 4: What?
Male Voice: For example, if you were the policy-maker and you are to adopt such a policy that would not be possible. For instance, in my case...are congressmen included here...those who enact the law?
Moderator: Yes.
Male Voice: I think it is not possible for me, a Member of Congress, to allow taxation of the rich with a floor constraint. I will not pass a law that I would be the first one affected.
Female Voice 4: The more that I will not pass a tax that would go to unknown workers that you were referring to.
Female Voice 5: Who will determine these workers in the first place? That is the difficulty with your proposal.
Male Voice: But you can still follow them up outside the...I just don't like that principle. (Laughter)
Female Voice 2: I think he is really biased. He admits he doesn't want C so whatever we do he just doesn't want to agree. Even if he has no reason...
Female Voice 5: I doubt it if we could convince him.
Female Voice 2: I told you he is biased.
Female Voice 1: Problem which I can see with is in the table.
Male Voice: I can see a positive thing about it. You can...It is as you are not limited to lobbying for reforms through policy-making struggles. You can do other things, aside from that which has to do with the tax system, if you are biased to it.
Female Voice 1: With what? A?
Male Voice: Yes.
Other Voices: A?
Female Voice 4: When you look at A you look at it as an ideology. I am looking at A as a policy-maker. What is feasible? My problem is that...
Male Voice: But policy is always influenced by ideology.
Female Voice 4: Of course.
Female Voice 2: Look at it this way whatever our decision is, it should be implementable regardless of our interests. If it is implemented, what will happen?
Female Voice 1: It seems you do not pity the worst-off because this group...
Male Voice: If you look at it, you can implement all if...

Female Voice 5: But look at the results...If we adopt A, what would happen? If C, then what? What is the best?
Male Voice: Still A.
Female Voice 2: A is good but it is not feasible especially in the Philippines.
Female Voice 4: What do you mean?
Female Voice 5: In A, who will determine the worst-off? That's the problem.
Female Voice 2: Statistics.
Male Voice: The people themselves.
Female Voice 5; What do you mean by statistics?
Female Voice 2: The true facts. You would look at a person's salary, the number of children, if...
Male Voice 1: Actually, it is not only statistics. Statistics can be easily produced.
Female Voice 2: The true statistics.
Male Voice: Yes. Statistics which are not only those recorded but from your experience. If you are exposed to...
Female Voice 4: Are you referring to our own experience?
Male Voice: Not only you but also those around you. If you are exposed to people who are worst-off, you will feel what they feel and then you would tend to adopt that standpoint.
Female Voice 5: I think it is also selfish to look at your own standpoint only. Consider everyone not only others.
Male Voice: That's unfair because today...
Female Voice 2: In any policy not everybody is happy. There are policies which make people happy or unhappy.
Female Voice 5: But let us see which policy would make most people happy. Not only the poor people.
Female Voice 2: What policy is feasible? What would be allowed by the majority? Not only the poor because we also have those in the medium low income class.
Other Voices: Yes.
Female Voice 5: Also, the problem with definitions. Who will decide?
Female Voice 2: You are only helping those in the low income class.
Female Voice 4: I am also exposed to such a reality. Okay, maybe all of us. If you live in a poor urban area, you see them every day of your life. How would you be able to see them? It is not because you pity them that you protect these people. By doing that, you are not protecting them from themselves. Because, we can not focus on helping them only. And...
Male Voice: But with a floor constraint, that is what is happening. You pity these people.
Other Voices: No.
Female Voice 4: They still have to work.
Male Voice: Where will you get what you will give to them?
Female Voice 4: You tax those in the upper-income bracket and subsidise the poor. The rich won't know that the tax went to specific persons. That should be your outlook -- that when you are rich you will think my money went to these persons. What I can see in A -- what others say that there are people who are poor and you give them money. In effect...
Moderator: Why should the government ensure that there is a minimum income?
Female Voice 2: Because it is the workers who produce goods in their factories.
Female Voice 1: And it would raise social chaos.
Female Voice 4: The danger of...poverty.
Female Voice 5: Political instability. If the society is not stable, then...
Female Voice 2: There would often be rallies by the people.
Female Voice 3: Isn't it that in A, if I were the most poor, I would look at it as charity? It's too much charity. In C, give me an assurance that if I work this number of hours I'd live a decent living. My life would be better. And I have a chance I would not feel I am indebted to you that you gave me this and that. The tendency is that you would look down on me if we adopt A. I am the worst-off person and I was given something.
Female Voice 4: It seems you are working against the persons you wanted to protect. Isn't it?
Moderator: So what now?
Male Voice: Votation. (Laughter)
Other Voices: Five is to one.
Male Voice: Okay, five is to one.
Female Voice 5: Because you just don't want C no matter how good our arguments are.
Moderator: You may still want to think and discuss if you wish. Do you?
Female Voice 4: No, his mind is closed.
Male Voice: It is not that I have closed my mind. That's my conviction, so that's it. Who are the majority in the Philippine society -- is it the worst-off or the medium-low?
Female Voice 4: But what will happen there? There would be chaos.

Male Voice: No. If I give priority to the worst-off then next the medium low. It is not possible to just help the worst-off only.
Female Voice 3: Until they are the same?
Female Voice 2: But in principle A, you are only concerned with the worst-off.
Male Voice: But isn't it that the medium-low may go down to the level of the worst-off, isn't it?
Female Voice 4: For a time. In principle A, there is such a possibility.
Female Voice 2: Then some people will get angry.
Female Voice 4: C would also capture the worst-off.
Moderator: Why?
Male Voice: I don't think so.
Moderator: Think about it.
Female Voice 5: He just won't concede.
Female Voice 2: Give us an example.
Moderator: Why do you think C will not capture the worst-off?
Male Voice: No. I just don't like C. (Laughter)
Other Voices: Well, that is not allowed.
Male Voice: Why not? I am not convinced with your arguments.
Moderator: I want to hear your arguments.
Other Voices: Who knows? You might even convince us. Come on.
Moderator: I also want to learn from what you are saying. If you are just answering this way because you are not open to other people's ideas, that's another case.
Other Voices: Come on.
Male Voice: For me I equate justice with democracy. So, when you are democratic...
Female Voice 4: But you are not democratic with A.
Male Voice: When you are democratic, it's the majority over the minority. Who are your majority?
Female Voice 1: The working class is not the majority.
Female Voice 4: In the definition of A, they are not the majority because it looks only on the worst-off.
Male Voice: When you have such a narrow definition of worst-off that is far from reality.
Female Voice 4: Then we are changing the principle. Think of a new principle.
Female Voice 5: What you are saying is that this is the principle but you are expanding it to something else and you insist on it. The principle tells us...
Female Voice 2: The principles have a limited definition.
Female Voice 4: Now, you have to convince me to adopt A but do not change definitions.
Female Voice 3: Isn't it that the interest of A is that when you raise the income level of A then you don't have a problem any more? How about those in the middle low? If their incomes cannot sustain a decent living, then what would happen to them?
Female Voice 2: Also, most of those who are worst-off, they do not work. More of the medium low.
Male Voice: Same as those in the high income bracket.
Female Voice 4: It is not true that the rich do not really work. They cannot afford not to work in the long run.
Female Voice 1: There are a lot of poor people who are happy. As long as they can eat, give what their child needs, and to have some security. The rich are in fact insecure. They are not better-off compared to the poor who are happy.
Female Voice 4: And money is not an assurance of happiness. Especially when you are very rich, you are not contented. Here we are coming up with a policy where there is security and addresses the basic needs. If you are not happy with that, then...
Moderator: Since this group has to adopt a principle by the majority rule, what would be the floor level that your group will adopt? Say, a monthly income for a single individual.
Female Voice 4: It depends on where the person lives.
Moderator: On the average, whether in MetroManila or outside MetroManila.
Female Voice 2: A minimum income per month. For me, 30,000 pesos.
Female Voice 3: Seven thousand pesos.
Female Voice 4: Ten thousand pesos for security.
Moderator: What do you notice when the floor constraint is set at a high level?
Female Voice 1: A larger amount will be deducted. (Laughter)
Moderator: If it's too high, you have to give up some options and revenues. So you have to come up with a 'reasonable' floor constraint. And what is 'reasonable'? Define it yourselves.
Female Voice 4: 'Reasonable' means it would allow a person to survive by providing security and some basic needs.
Moderator: How much would that be?
Female Voice 4: Six thousand pesos.
Moderator: Does everybody agree?

Female Voice 5: Would that be enough?
Male Voice: There are some people who are earning 8,000 pesos a month. In such a set-up there are still a lot of poor people.
Female Voice 5: Are they still poor with 8,000 pesos a month?
Female Voice 1: Per individual?
Female Voice 5: Maybe they live beyond their means.
Female Voice 4: One day they live like millionaires. That's their way of life.
Female Voice 5: Yes.
Female Voice 3: Six thousand pesos a month. Would that be okay?
Female Voice 5: I am not sure.
Other Voices: I think that is okay.
Female voice 3: How much is the minimum wage in the Philippines?
Female Voice 3: What if you are renting? Say, 8,000 pesos.
Moderator: It seems you have to decide between 6,000 pesos and 8,000 pesos.
Other Voices: Perhaps, 8,000 pesos.
Female Voice 2: Isn't it that when the minimum wage is too high then the employers might lay off workers.
Moderator: That's possible.
Female Voice 2: It is better to have more people with jobs.
Female Voice 4: You are just alone. If you are alone, do not rent an apartment on your own. Stay in a boarding house.
Female Voice 2: For food and...
Female Voice 4: One hundred eighty-five pesos a day for food and some additional for security. I bet they did not assess that because they are not concerned with that.
Voices: I think 185 pesos a day would be enough. Pay for insurance, too.
Female Voice 2: The rich might complain.
Moderator: So what now?
Female Voice 4: Eight thousand pesos, but it seems to be high.
Female Voice 2: No lay-off of workers, remember?
Female Voice 5: Isn't 8,000 pesos too high?
Other Voices: That's all right.

END

(Outside MM Students - Group 4) 13 February 1997 230 PM - 400 PM

Moderator: How many of you chose A as their first choice? None. B? None. C? Three. And D? One. Explain why you chose D.
Female Voice 1: I have chosen D because it assures that the range or the difference between the highest and the lowest is per a specified amount only. So, can I explain outside the...
Moderator: Yes.
Female Voice 1: Another reason why I chose D is because most of societal problems are induced by the differences between the highest income earners and the lowest income earners. So if you want to minimise the difference then most probably the problems in relation to that difference will be more or less discarded.
Moderator: For those who chose C, why did you choose C?
Male Voice 1: I chose C because there must be at least a minimum income distribution.
Moderator: A minimum income guaranteed to everyone? Why?
Male Voice 1: To at least effect probably equality in incomes.
Moderator: Maybe equitable? You, why did you choose C?
Female Voice 2: Because I think if you have a minimum floor more are better off than the average.
Moderator: More people will be better-off? Which segment of the population are you referring to?
Female Voice 2: The lower income class.
Moderator: How about you, why did you choose C?
Male Voice 2: Can I speak in Tagalog?
Moderator: Yes. (Laughter)
Male Voice 2: The lower class are ensured that they will receive shall we say a minimum income which would be okay for them. [Translated]
Moderator: So they chose C because they want to guarantee this minimum income. But why should this minimum income be given? She said to benefit the lower income class. Do you share the same view?
Male Voice 2: Yes.
Moderator: But A benefits the low income class. Why did you choose C over A?

Male Voice 2: Because C is more justified. It is not biased. It is also fair to the high, medium high, medium, and medium low income classes.
Moderator: I noticed that the three of you chose D as your second choice. So, why did you choose C over D?
Male Voice 1: Because D looks at the difference between the highest and the lowest incomes or the in-between levels while in letter C you are maximising the average at the same time there is a floor constraint.
Moderator: How about you? D is your second choice. Why did you choose C over D?
Male Voice 1: Because I was looking at the prescribed constraint. You are setting a stability in the income or money received. Why C over D? Because...
Moderator: They both maximise the average but one has a floor constraint while the other has a range constraint.
Male Voice 1: You can establish up to what level a person's income will go down.
Moderator: Why is it necessary for their income not to go down a certain level?
Male Voice 1: Because you have to consider the stability of income.
Moderator: Stability of income?
Male Voice 1: And the stability of society as well. Because if your income is very low...
Female Voice 1: The reason I chose C over D is that the incomes of those in the highest income levels are too high as compared to those at the floor level. So, those who are at the floor levels are relatively at a disadvantage compared to those in the highest.
Moderator: What can the others say about that? She said that it is a disadvantage...because there is a very wide disparity between the highest and the lowest income levels.
Male Voice 1: You cannot avoid having rich people earning high incomes. What is happening now is they monopolise businesses. You cannot stop them in the sense that what they want... You do not have any right to stop them if they want to earn more.
Moderator: What can you say about C?
Female Voice 1: But in that sense the reason they chose C is to improve or stabilise the position of the lowest earners. However, they will still be prone to abuse by the highest income earners because, for example, their income is very high as compared to those at the floor level. If you allow these two forces to fight it off those who are within the floor constraint are at a disadvantage although you won't go below the floor constraint.
Moderator: So think of a peso figure, a monthly income, where you can say that there should only be a disparity of X amount between the highest income class and the lowest income class. Can you think of such a figure?
Female Voice 1: Thirty thousand pesos.
Moderator: Do you mean to say that incomes will be redistributed such that entrepreneurs cannot earn more than 30,000 pesos as compared to the lowest income class? Do you think that is possible?
Female Voice 1: That is possible but it is not beneficial. Instead of saying that the range should be constant, if the high income earners increase their incomes then the incomes of those below should also increase. As long as the range is...
Moderator: So, you would also raise the incomes of those below as your high income earners increase their incomes?
Female Voice 1: Yes.
Moderator: So what do the others think about that?
Male Voice 2: It is difficult to maintain a constant range constraint which she said. You cannot avoid the attitude of those in the highest income levels who are very eager to earn more.
Moderator: Who else wants to add?
Male Voice 1: My point is that we are setting the standard such that the income should not go down a certain level but you could still improve. That is why you do not have a ceiling or a range constraint so that there is an improvement. At the same time you are preventing the income to fall so that their incomes will not go down too low. I am interested in improvement and progress.
Male Voice 2: The possibility that you stop people from earning more than a certain amount is difficult. The possibility that you raise the income of those below to attain that constant is...also difficult because you consider their attitude to work and you give them a salary higher than their work or not commensurate to their work.
Moderator: What can you say about that?
Female Voice 1: The advantage of C is somehow the disadvantage of D. It seems that it is possible to maintain the range but it is the way to ensure the...My basis is if there is a disparity or greater disparity between the highest and the lowest incomes the society will not be stable. There will always be a pressure...
Moderator: He said that if there is no floor constraint the more that there won't be stability because it is possible that those in the lowest income levels will be...

Female Voice 1: Exploited...
Moderator: Exploited or they might get angry, is that so?
Female Voice 1: Do we really have to choose one [principle] only? Because, if you combine the two [principles] you will maximise the benefit. For example, you decide on a floor constraint and within that or beyond that, there will be nothing more. When it increases, the range should be 30,000 pesos for example. You are not suggesting zero income. There is a floor as well as a range constraint. Their combination is the best in relation to...
Moderator: What you are saying is that there is a floor constraint and the range is managed. What do the others think?
Female Voice 1: Still D with the qualification that no one gets zero income.
Male Voice 2: That is why when you said that no one will get zero such is not possible because there is a possibility for that to happen.
Female Voice 1: The others should convince me!
Moderator: He said that if you raise the incomes of those at the lowest levels you would be giving them money even if they do not work because you raised their incomes to a high level. So, those who want to work are demotivated because there are a lot of free-riders.
Female Voice 1: I can see the advantage of C.
Moderator: So, what is in C? Is it easy to set a floor constraint in C?
Male Voice 2: Easier compared to D because in D you have to argue on what income level is high and what is low.
Moderator: So when you decide as a Committee member you have to broaden your perspective. What if I was rich, poor, or in the middle class? That is how you decide.
Male Voice 2: That is why at the start you would have to agree on the range. What is the upper bound? The lower bound? Then you deduct or subtract one from the other to get the range constraint. You would have to argue on the income levels.
Male Voice 1: On the issue of free-riders, you will give the lower income people salaries higher than what they worked for. Perhaps, if you look at their ratio or the percentage to those who work maybe that would be minimal. The reason you work is that you want to improve your life...isn't it? To survive and not to rely on those who work. So, in setting the floor constraint, you are giving a person an initial sum where he could start off.
Moderator: A starting point?
Male Voice 1: Yes.
Moderator: If you were a single individual and let's talk of a monthly income, this start-off point, how much would that be if you were setting the constraint?
Male Voice 1: Annual?
Moderator: Monthly?
Male Voice 1: Around 20,000 pesos.
Moderator: Do you agree with such an amount? You are saying that you will give all the working age population 20,000 pesos each as a minimum guarantee. Is it high, too low, or what?
Female Voice 1: It depends on the prices.
Moderator: Prices, yes?
Male Voice 1: It depends on the economic situation of the country. If you are industrialised, then that would be too low.
Moderator: We are using the Philippine context.
Male Voice 1: Philippine context? (Laughter) Perhaps, that would still be low if we are talking of an ordinary worker.
Moderator: A minimum income.
Male Voice 1: So say, 10,000 pesos.
Moderator: Do you agree?
Female Voice 2: Yes.
Female Voice 1: It depends on the buying capacity of the money in the Philippines.
Moderator: In today's pesos. You can say too low or too high depending on what kind of expenses you are thinking of. What would that cover?
Female Voice 1: If you were single and you don't own your house you have to rent.
Moderator: Rental, okay.
Female Voice 1: Food, every day.
Moderator: For an average Filipino, whether you are in the rural or urban areas, how much should that minimum income be?
Female Voice 2: The lifestyle in the urban areas differs from that in the rural areas.
Moderator: Think of government policy now. There is such a term called minimum wage, isn't it? It works like a floor constraint because you are saying that this is a minimum amount. The minimum wage that is adopted in the urban and rural areas differs. It also differs between skilled and unskilled,

agricultural and non-agricultural, etc. So, it is possible to set a floor constraint. For instance, how much should a Filipino earn, in today's pesos, to cover what you said, food, clothing, shelter, transportation, and other utilities? How much?
Male Voice 2: The minimum wage set by the government, is how much? One hundred pesos plus per day is okay.
Moderator: One hundred eighty-five pesos a day. So, if you round it off to 200 pesos and given 30 days that is 6,000 pesos a month.
Male Voice 2: That's okay.
Other Voices: Okay.

END

(MM Government Employees - Group 2) DSWD 21 January 1997 1115 AM - 100 PM

Moderator: Okay, so per the process, A versus B? Who wants A? None. So, A is out? No one wants to maximise the floor income? B versus C? How many want B? One. How many Cs? Two. How about you?
Female Voices: D.
Moderator: Okay, we have two Ds, two Cs, and one B. You have to arrive at an unanimous decision. Okay?
Female Voice 2: Maximise the average income subject to a range constraint because there is a possibility that there is a zero income based on maximising the income of the individual. As such, you will really be able to see the situation happening in the community. Why did the person get zero income? Because you will see from the lowest to the highest.
Male Voice 1: Are you saying that the process is systematic?
Female Voice 2: Yes, the process is systematic. You can see the truth of what is really happening at present.
Moderator: Your role here is that you are the policy-makers who will set the principle. So, if that is the principle that you will impose on the society, are you saying that it is possible that in your society there are those who may receive zero incomes?
Female Voice 2: That is possible. As a policy-maker you can see what is wrong with the situation.
Female Voice 1: Besides, it is natural...it is realistic...That there are people in the community who do not have incomes.
Female Voice 2: Now, you have to adopt an action that would make it possible to remove this situation.
Female Voice 1: If you do not act then nothing will happen.
Moderator: At the moment, you will already choose a principle given that you have already assessed the situation. So, imagine that you have already assessed the situation and that there is a possibility that some people will receive zero incomes. So, you have to agree among yourselves what policy should we adopt to have a just income distribution in Philippine society. So how about the Cs, what can you say?
Female Voice 2: So, we have already assessed the situation today?
Moderator: Yes, you have already assessed the situation. So, what principle should policy-makers adopt for the rest of the society for the income distribution to be just or fair to all?
Male Voice 1: Me, I like B because I do not like anyone to receive zero.
Female Voice 1 and Male Voice 2: It is possible to have zero income in B.
Female Voice 1: Two persons, one receiving zero and the other one million pesos, their average is 500,000 pesos.
Male Voice 2: You are only getting the average income.
Female Voice 1: The government should have a policy such as income-generating projects for individuals with no jobs or with no income so that the distribution is clean or fair.
Moderator: As policy-makers, you are already in-charge of income distribution and you are with the government. Your role is to adopt a policy for distributing income. It is already your group who will decide to adopt such a policy.
Male Voice 2: Are we not considering inflation here?
Moderator: You may consider it.
Male Voice 2: Okay, I chose C because given the Philippine context and to be realistic there is really zero income. So, the proposal is to maximise the average with a floor constraint that means incomes will be distributed in such a way that every Filipino will have a fixed income - a minimum income. That is why I chose C because we all know there are those who get zero income and with C they will have purchasing power. They should also partake of the wealth.
Male Voice 3: In C, it could be shown clearly what really is the floor income of each individual. From there, we maximise the average income. For example, we have already determined the floor constraint,

the lowest possible income of every Filipino, then we can maximise the average from the floor. That is how I understand it.
Moderator: So what can the Ds and B say?
Female Voice 1: We are sticking to D. (Laughter)
Moderator: How about you, sir?
Male Voice 1: B, maybe D. They should justify their choice.
Moderator: So, why D? Given that you have to now decide a principle of justice, why D? Think of peso values. For your range constraint, it means that the high income earners should not earn more than x amount over the lowest income earners. Think of a peso figure. So, the two of you have to set a range constraint. What range do you think should be the difference between the highest and the lowest [incomes]? So, how much is your range constraint?
Female Voice 1: Is it not that the gap between the richest and the poorest is wide?
Moderator: So, how much?
Male Voice 1: I think that is not realistic.
Moderator: Why?
Male Voice 1: Because you cannot control the purchasing power and the earning capacity of a person. They are not the same for everyone.
Moderator: So what do the others think?
Male Voice 2: It depends on the economy that we have. For example, if the Communist Party ruled over our country, then we can dictate how much. In Russia and China, for instance, the State can decide the clothes that you will wear, the food that you will eat, and how much money you will have. I will give an example. For D, there is a possibility of having zero incomes. You will have to set the range between the rich and the poor. Say for example, for D, the two of you are rich and I am poor. Your income is one peso and mine is zero. Our purchasing power is small in money value because the difference is small. Whereas, in C, what we are pushing here is that at least all of us have something. Regardless if you are very rich or not, all of us will not go below say, for instance our floor constraint is 6,000 pesos or 10,000 pesos a month. This means that each of us would not earn less than say, 10,000 pesos a month. The only choices here are between earning zero income and all of us earning something.
Female Voice 1: You did not consider in your idea that the range changes depending on your responsibilities and educational qualifications. That is why your salary is higher. For instance, your salary is higher than mine because you have more responsibilities.
Male Voice 3: In C there should be a floor constraint or the lowest income. We are not saying that your salary should be higher than that. So, we set a floor constraint that is the lowest. It could go up.
Male Voice 1: The reason I do not want C or D is that I do not believe that it is possible economically. You cannot control the earning power of a person who wants to earn. If you can control it then we can have a constraint.
Moderator: It is up to you to set that as a policy.
Male Voice 2: It is only up to our imagination.
Male Voice 1: Oh, I see. It depends on...
Moderator: Look at what is happening in the Philippines. There is an instrument for setting a floor. What instrument do you think is being used by our government?
Male Voice 1: The government promises to help but this is not true. For instance, it [the government] provides pensions on instalment basis when it can pay for it in cash.
Moderator: That is, given that you already have incomes. If you do not have incomes, for instance, what law or policy am I referring to? The minimum wage law.
Voices: Oh, yes, the minimum wage law.
Female Voice 1: That is for those who are earning only. For those who are not?
Moderator: We are talking of incomes here.
Male Voice 1: What about those who do not work? What is the guarantee that we can give an income to all the people?
Male Voice 2: In the Philippines, it may be hard to apply. But we should come up with an agreement. In other countries with welfare states...
Moderator: It is possible that the government provides non-cash benefits. Even if you do not have a job, if you impute the value of the services that the government provides, there is a value to it. For example, the peso value of free primary education.
Male Voice 1: If you have free housing, you monetise that.
Moderator: In the case of low-cost housing, the government provides a subsidy.
Male Voice 3: If you do not have a job, at least you have a monthly income.
Male Voice 1: In the Philippines, the problem is that laws are not followed. That is your constraint. Too many laws which are not followed. We should come up with a democratic society.

Moderator: So, imagine that you are the policy-makers now. What policy will you adopt? So still two Cs, two Ds, and still one B?
Male Voices 2 and 3: Still C.
Male Voice 1: If you talk of a range constraint, people will not really agree to that?
Male Voice 2: Ideally, letter C. In other countries, for example, Canada and Australia that are welfare states, everybody gets benefits. The government is serving its people the best that they can. Not like in the Philippines, here the disparity between the richest and the poorest is very wide despite the constitutional provision that income and wealth should be redistributed. So, we go for C. This is a Utopia but at least we are entitled to a welfare state.
Moderator: So, what do the others think?
Female Voice 1: We can find a way out of the zero incomes.
Male Voice 3: It is not possible to subsidise everybody.
Female Voice 1: Provide income-generating projects for those who do not have jobs.
Male Voice 3: It depends on the skill and the acceptability. Even if you give to them these projects, if they do not want to work, so?
Male Voice 1: However, most of the people prefer what you call 'instant'. So, it is difficult to adopt a policy.
Male Voice 2: What is your ideal society? Let us forget the Philippine context. Start from nothing. So, you create your society. Say, given B, why do you want such kind of distribution for your ideal society. How would you explain that?
Male Voice 1: I was thinking of a society where all our incomes are divided equally. Very ideal...equally distributed.
Male Voice 3: Is their effort equally distributed, also?
Male Voice 1: No.
Male Voice 3: If not, is that fair?
Male Voice 1: Some of them will have different abilities.
Male Voice 2: I do not think that is fair. Your format is a communist society.
Male Voice 1: Yes, it is communist.
Female Voice 2: I do not support that. Because under a communist society not everybody does the same thing. So, for instance my neighbour works differently from me and we receive the same income. Those who are occupying high positions give the orders and those below follow orders and they are the ones who work. Those who give orders just sit down. So, if you do not look at that angle, how could we say that incomes are distributed equally?
Male Voice 1: Okay, it is hard to see. Everything starts from a need. Say, our gross national income. Now, how do we distribute it such that there is no one who will be unable to eat.
Male Voice 2: That is why we go for C because of that situation. Since everybody has a need so everyone has something to sustain that need. In our society, the powerful overcomes the weak. The more powerful can overcome the weak because of these inequalities as well as the deficiencies of the weak. So, the government should at least provide the person protection, everything so that a person can live decently. Because in any society, if you are the most educated or most trained, you will achieve a status and you will be more powerful. So, the more powerful can defeat the weaker ones and this is the example in the Philippine context. So, the rich become richer and the poor loses more because there is no redistribution. So, all individuals receive an income for the person to live decently. The reason we are against D is that you are suppressing the individual from becoming richer according to what he earns. For example, if you are hardworking and I am against the policy that you can only get those properties because you have reached a certain level. So, if you still want to work, you become less motivated to improve yourself such that you could have helped improve your economy.
Male Voice 1: What I was thinking of was a utopian society. Not everybody would agree to that. Only a minority thinks that way. That is called Utopia.
Moderator: Think of the stability of the society. When you adopt a principle, there should not be chaos. If there is chaos as well as instability, the policy-makers may also lose their jobs.
Male Voice 3: The people should be satisfied with your policy.
Male Voice 1: Yes, if you think of what is ideal. However, it is difficult to look into the issue of competitiveness given the utopian state.
Moderator: So what is your group's decision? (Laughter) If you could not decide, then I will choose. Were you convinced by the D people? Do you think you will end up with a majority rule?
Male Voice 1: No.
Male Voice 2: One more C and we are okay.
Moderator: What if you were the ones who got into the low income bracket or due to 'accidents of birth' you were born poor? We are not sure that we are all rich.
Male Voice 2: Have you accepted that you get zero while in our society all of us have some money?
Male Voice 1: That is why I did not choose D.

Moderator: In B, you may also get zero income.
Male Voice 1: How come?
Moderator: In B, if you receive zero and I earn one million divided by two, we have an average of 500,000 pesos. Your argument does not support B.
Male Voice 1: Why?
Moderator: Because you can get zero income. If you earn zero and I earn one million pesos our average income is 500,000 pesos. We can maximise the average income but your income is zero. So?
Male Voice 1: Who am I protecting?
Moderator: You said you prefer an equal distribution?
Male Voice 1: Yes.
Moderator: It is not among the four. It is not the same as B.
Male Voice 1: What rule allows equal distribution of income?
Moderator: None.
Male Voice 1: So, my choice is not among the four.
Male Voice 2: The income distribution may be equal but the effort is not equal. How is that? If the income distribution is equal and the effort is equal, then that's okay.
Moderator: Again, think of the stability of your society. As policy-makers you lose your jobs in less than a week's time.
Male Voice 1: I really think my ideas are not of this world.
Moderator: In reality, an equal distribution of income is not possible. Because even if I work hard and the other person just sleeps, we would earn the same income.
Male Voice 1: Such is possible in a Utopian society.
Male Voice 2: For the sake of argument, then? We are left with two principles. C or D?
Male Voice: I will stick with the range constraint or D.
Moderator: If D, what is your peso figure for the range constraint?
Male Voice 2: What is the difference between the earnings of the richest and the poorest?
Moderator: If you had the *Ayalas* or *Zobels* earning two million pesos a month, they should not exceed the income of the lowest income class by how much? For the range, you have to set a range amount.
Male Voice 2: So, what is your range?
Male Voice 1: Fifty thousand pesos a month. Because, as you increase the high [the maximum income] you should also increase the low [minimum income]. That [range] will not be too high.
Male Voice 2: Say higher figures, one million pesos, zero income, and 50,000 pesos.
Male Voice 1: For instance, the salary standardisation law for government employees.
Moderator: We are looking at the whole society.
Male Voice 1: The objective of the salary standardisation law is to make the salaries of government employees closer to those in the private sector. What happened is that people on top moved elsewhere.
Moderator: Salary standardisation is one way of adopting principle D because you are reducing the disparity in incomes across government offices and between the government and the private sector. The 'good' employees availed of the Early Retirement Law. Most of them went to business.
Male Voice 2: We should consider our basic needs. Very basic. That will be our floor. Say, 50,000 pesos a month to meet all your requirements. Then, that is the minimum depending on the status of our economy. So, if the economy is good or as our Gross National Product increases, the minimum income rises. Because the target of government is 1,000 dollars per capita by the year 2000 so it will ensure that every individual will earn that much. What we are saying is that we want to make sure and secure that we will receive something no matter what happens. The government will provide that.
Male Voice 1: The government already has a concept of basic needs.
Male Voice 2: Yes, that just shows that such is what our families need.
Male Voice 1: Oh, is that so?
Male Voice 2: Of course, the rich will not agree readily to this scheme. The government should find ways of generating a huge income to sustain the Social Reform Agenda. Not so easy to say that incomes and wealth are equal. It takes much political will.
Male Voice 1: My perspective is very narrow.
Moderator: So, as policy-makers, you have to be broad-minded. You should see all aspects.
Male Voice 2: For the best interest of the people, perhaps we adopt management by objective?
Moderator: Do you agree with maximising the average with a floor constraint of 10,000 pesos?
Male Voice 1: I agree as long as the poorest receive money.
Other Voices: Of course, they will be covered.
Moderator: How about the two others?
Female Voices: Okay.
Moderator: So, how much, 6,000 pesos or 10,000 pesos?
Female Voice 1: Six thousand pesos is too small. Ten thousand pesos, then.

Female Voice 2: Realistic only. Basic needs -- food, clothing, and shelter. It depends on the number of children. Ten thousand pesos is not enough.
Moderator: If you talk of so many children, it would depend on for instance, how many family members work. So to simplify things, let us say for a single individual.
Female Voice 2: Ten thousand pesos.
Female Voice 1: Ten thousand pesos also.
Male Voice 2: Realistically, 1,300 dollars per capita. How much was the minimum amount that the NEDA set for a family of six?
Moderator: Let us stick to individual incomes. So?
Male Voice 1: Okay, 10,000 pesos then.

END

(MM Government Employees - Group 4) DAR 27 January 1997 1045 AM - 1130 AM

Female Voice 1: (Laughter) Maybe, we should start from our first choice in our last ranking. We might have the same number one choice so we may not have a long discussion.
Female Voice 2: Me, I am consistent with B from the first ranking to the last.
Female Voice 3: Me, too. B. You?
Male Voice: In the last ranking I chose D.
Female Voice 1: You?
Female Voice 4: I have consistently chosen D. You?
Female Voice 5: Average income, also.
Female Voice 1: So, there are already three Bs and two Ds.
Moderator: So, why B and D?
Female Voice 2: Let us concentrate on those two.
Moderator: Now assume that you are policy-makers who are here to adopt a principle of distributive justice for the rest of the Philippine society.
Female Voice 2: I should think of myself, too.
Female Voice 1: Our goal should be noble. (Laughter)
Female Voice 2: Okay, assume that we are noble.
Female Voice 1: Pretend you were God. (Laughter)
Moderator: So, for those who chose D can you think of a possible range constraint where the disparity between high and low should not exceed that amount in the Philippine context? Do you think that it is possible to stop the rich from earning beyond a certain amount?
Voices: No.
Moderator: Do you think it is a disadvantage to adopt D?
Female Voice 1: What we chose is the ideal and not necessarily looking at the real situation.
Moderator: Think of the real world.
Female Voice 3: Average income? Is that real?
Female Voice 1: Why not C?
Moderator: Why C?
Female Voice 1: Because, you cannot control the range constraint. You are hindering some people, being in a democratic country, from aspiring to receive a higher income if they could. It is also a pity for the poor. So, there should be floor constraint such that the difference is not too wide...the rich may not affect others which is super-super that we do not belong to the same planet.
Moderator: So, who agrees with her?
Female Voice 4: What is C again?
Voices: There is a floor constraint. A minimum income for everyone.
Female Voice 2: Like a minimum wage.
Female Voice 1: Yes, a minimum wage. Just like the present. Number 3.
Female Voice 3: It seems that principle is what we are adopting at present, I think. In my case I chose average income because it is somewhat ideal. It is not possible for all effort or everyone to be equally skilled and have the same income. What I am always looking at is the maximum amount. So mathematically speaking, it is the average income which is the highest. So that has consistently been my answer. At first I chose number 3.
Moderator: The third and the fourth also maximise the average but with a constraint.
Female Voice 3: Yes. That is why Numbers 2 and 3 compete in my computation. For my third and fourth ranking, I would go for 3. My first two, I chose average income. That is where the distribution of income is equitable among all. A mix of ideal and...
Moderator: So, is C okay with you?
Female Voice 3: Yes, I could stretch to C.

Moderator: How about the others?
Female Voice 1: What is yours?
Female Voice 4: B. My second choice is C.
Female Voice 3: However, my dream is number 2. (Laughter)
Moderator: So, how about the others? Is that okay with you?
Female Voice 2: Perhaps, C because they already chose C.
Moderator: No, it's not that way. You have to choose your principle.
Female Voice 1: It is boring to just maximise the average. What is the implication of choosing C?
Moderator: In C there is a floor constraint.
Female Voice 1: In C, if you are more patient, you have a chance to go up. You can work harder because you want to earn more and you can be compensated for that with income. That is what I think. For me, if your income is the same, I do not think...people want to have something to look at. For example all of us we have the same room, R2, but in terms of work, he works harder and I am lazy but our income is the same. That's okay with me and not for him. If we base merit on effort, then I will work harder so I can reach his income...is it not? Rather than us having the same income, he could maintain or exert more effort for his income to go higher.
Moderator: So if you chose C, in terms of individual incomes on a monthly basis, what would be a reasonable floor?
Female Voice 1 and Male Voice: Monthly?
Female Voice 3: Five thousand pesos. (Laughter)
Female Voice 1: Possible.
Female Voice 3: In my case I do not have a family and that's just an exact amount. I cannot even save much. (Laughter)
Female Voice 4: House rental. Food. Is that exact? Let us add some more.
Other Voices: How?
Male Voice: If the floor is 10,000 pesos that is okay if you are in the urban areas. In the provinces, that is too much. If we talk of a national floor, the figure would change.
Female Voice 2: I think 10,000 pesos is enough.
Moderator: As you increase the floor at too high a level, you have to give up more income distribution options. If you guarantee a minimum income to everyone you have to generate tax revenues to give everyone that minimum income.
Female Voice 1: That's right or else the 10,000 pesos will be in paper only and we cannot provide that. Okay, 1,000 pesos then. (Laughter) Joke only! You are too serious.
Female Voice 4: What is the minimum income in the province?
Female Voice 1: I do not know. I am not from the AgriCom.
Male Voice: Under the New...(Laughter) 185 pesos a day.
Female Voice 1: For the province, what?
Male Voice: If you are in MetroManila, that's okay.
Female Voice 2: Six thousand five hundred pesos. That's okay.
Female Voice 4: Anyway, there are provinces with a high cost of living.
Male Voice: Five thousand pesos, then.
Voices: Okay.

END

(Outside MM Government Employees - Group 3) DA 4 February 1997 230 PM - 315 PM

Moderator: So, who prefers A? None. Who prefers B? C? Three Cs, one D and one B. So for the Cs, since you are the majority, can you explain why you chose C?
Male Voice 1: Do we have to cite the floor constraint?
Moderator: Later.
Male Voice 1: We chose C because it separates the average income but the average income is qualified to the floor constraint which will eventually lead to a more equitable distribution of income among the populace. With the floor constraint, you can say that you considered the poorest of the poor and the poor. It is more of an idealistic choice. (Laughter)
Female Voice 1: As he said, we are giving a guarantee that everyone is provided a minimum amount. I think we should really provide a minimum income to everyone especially those who are already working so that...
Moderator: To cover what type of needs?
Female Voice 1: To cover all the basic needs.
Moderator: What is your concept of basic needs?
Female Voice 1: Access to education and food.

Moderator: Does everybody agree? For others, what was your basis for choosing C as your most preferred principle?
Female Voice 2: In this particular concept you are ensuring that everybody gets a minimum and the average is maximised also.
Moderator: Okay, now let us listen to the other two. After listening to the three, do you agree or do you want to change your answer or do you want to stick to your answer? Ms. B, they said that with C you also maximise the average. They have also considered getting the highest possible average income. However, they subjected it to a floor first. So, do you agree?
Female Voice 3: Yes. (Laughter)
Moderator: So, you agree with them now? How about you, why did you choose D?
Female Voice 4: In D you also consider maximising the average income and the range. When you set it, you get the difference between the rich and the poor.
Female Voice 2: It is also possible that some people receive zero income. Is it okay with you for some people to receive zero income? No? So, Is C okay with you?
Female Voice 4: Okay.
Moderator: So, if everybody agrees on C, maximising the average subject to a floor, how much monthly income could you think of which you guarantee that everyone should receive? It should be a minimum because we are guaranteeing every one of our working age population that guaranteed income monthly. A single individual or otherwise, we have to consider the number of working members in a family. So, for a single individual? Monthly?
Female Voice 1: Five thousand pesos.
Male Voice: That's too low.
Female Voice 1: A family of six has a poverty threshold of 11,000 pesos.
Moderator: For a single individual.
Female Voice 1: Five thousand pesos.
Moderator: Does everybody agree?
Male Voice: I disagree. That's too low. Using the present scenario of the Philippine economic situation what is ideal is 15,000 pesos a month. That is for a single individual.
Female Voice 1: Have you considered if you have the resources?
Male Voice: The resources are there. It is just a matter of prioritising where the resources go. For instance, what government is paying it should not pay yet until you come to recover. So, 15,000 pesos.
Moderator: So, 15,000 pesos monthly multiplied by 12 annually is 180,000 pesos.
Male Voice: One hundred eighty thousand pesos? Yes, as far as I am concerned.
Female Voice 1: Clothing and food are basic needs.
Moderator: No luxuries?
Female Voice 1: No luxuries. That is not considered a basic need. If we only consider three basic needs then we have food at 3,000 pesos, shelter of 1,000 pesos, and clothing of 1,000 pesos, that is, already 5,000 pesos. Add 1,000 pesos for utilities. Six thousand pesos, that is, per individual. That is the basic. So plus 1,000 pesos for miscellaneous items is 7,000 pesos.
Moderator: So, 7,000 pesos? Does everybody agree?
Female Voice 2: Earlier, we only considered one-half -- the one who will receive. How about the one who is providing? Do we have enough resources to pay because we have chosen C? So we are assuming that everybody gets an income. Let us say we set the minimum at 15,000 pesos. Then we have to exert extra effort in the collection of taxes or some other means.
Moderator: Yes, you have to get the income from somewhere.
Female Voice 2: Consider not only the employees but also the one paying our salaries.
Male Voice: Our employers, that's right.
Female Voice 2: So let us set the floor at the minimum.
Moderator: So, 7,000 pesos. Does everybody agree? Okay, so we formally agreed on a 7,000 peso monthly income. Principle C.

END

Annex 2
(Chapter 2)

HANDBOOK A

This handbook concerns people's attitudes to distributive justice. I am interested in getting <u>your</u> opinions on a range of issues relating to the justice of income redistribution policies where, in an initial situation, you are faced with considerable uncertainty as to what future income you may receive. Because it is about attitudes there are no 'right' or 'wrong' answers to central issues. This handbook does <u>not</u> aim to test your intelligence. Your responses will help shed some light on how Filipinos perceive distributive justice given considerable uncertainty as to future relevant events. The handbook is anonymous so please do not write your name on it.

Thank you for your participation.

The experiment devised here attempts to determine an answer to the following question: 'What is a just distribution of income in a situation where, in the initial situation, individuals are faced with considerable uncertainty as to future relevant events?' The reason for posing this question is that the wealth and income any individual in the Philippines will have access to during her/his lifetime will be influenced, considerably, by unpredictable events and circumstances. Casual observation of Filipino society suggests that this uncertainty results in personal incomes being unequally distributed throughout this community. Societies can deal with these inequities and risks by adopting suitable income redistribution policies. The purpose of the experiment performed here is to attempt to determine which redistribution policies are thought to be just in initial situations where individuals are faced with considerable uncertainty as to what future level of income they may receive. The experiments are constructed in such a way as to face participants in this experiment with just such an uncertain situation.

The experiment is divided into three parts.

In the first part of the experiment each of you will be introduced to a few theories of justice. To do this you will consider some examples, and make some choices. These choices will have real monetary consequences for you. Your pay, or reward, for the first part of the experiment will be based on your choices. You will have one hour to complete the first part during which time you will be given a series of questions. These questions are merely to determine if you have understood the concepts which are being used in the experiment. If you do not answer the questions correctly, then you are to go back to the review material and correct wrong answers. Once you have mastered the material, you can go on to make choices for which you will be paid. If you do not learn the material in a reasonable amount of time, you will not be able to earn as much money as possible since you must finish the first part of the experiment within one hour. But you should have plenty of time to finish this part of the experiment. Everyone will go on to the second part either after one hour or after everyone has finished Part 1, whichever occurs first.

In the second part of the experiment you will be asked, as a group, to discuss notions of justice. After the discussion, you will be asked to reach a group decision on which principle of justice you like best. The pay you receive in Part II of the experiment will be based on the principle which the group chooses.

In the third part you will be asked some background questions about yourself. Upon completion of the third part you will receive the sum, in cash, of your earnings from the two parts of the experiment. The money you receive is to be yours alone. *No discussion, or agreement, to share earnings is permitted.*

PART 1

This experiment is concerned with the justice of different income distributions. Let us begin by discussing some ways of judging the justice of an income distribution. A number of principles have been suggested for these sorts of judgments and we shall illustrate them by pointing out four such principles. But there are obviously other possible alternatives. *You may well think of some alternatives yourself!*

1. Maximising the Floor Income

The most just distribution of income is that which maximises the floor (or lowest) income in the society.

The principle considers only the welfare of the worst-off individual in society. In judging among income distributions, the distribution which ensures the poorest person the highest level of income is considered to be the most just.

2. Maximising the Average Income

The most just distribution of income is that which maximises the level of the average income in the society.

Since you do not know what level of income you may receive, application of this rule maximises your average, or mathematically expected, income.

3. Maximising the Average with a Floor Constraint of Peso _____

The most just distribution of income is that which maximises the average income only after a certain specified minimum income is guaranteed to everyone.

Such a principle ensures that the attempt to maximise the average is constrained so as to ensure that individuals 'at the bottom' receive a specified minimum. If this principle is chosen then one must specify the value of the floor (lowest income).

4. Maximising the Average with a Range Constraint of Peso_____

The most just distribution of income is that which attempts to maximise the average income only after guaranteeing that the difference between the poorest and richest individuals' incomes (that is, the range of personal incomes) in the society is not greater than a specified amount.

Such a principle ensures that the attempt to maximise the average does not allow income differences in income levels received by rich and poor individuals to exceed a specified amount. If this principle is chosen then one must specify the peso difference between the high and low incomes.

Of course, there are other possible principles, and you may think of some of them.

Now, that you have been familiarised with these four principles, please answer the following questions:

Rank order, according to your preferences, the following four principles of distributive justice by placing in the blanks below the letters (a), (b), (c) and (d), signifying the principles. Indicate ties by placing the tied principles in the same space.

most preferred _____ _____ _____ _____ least preferred

a. maximise the floor income
b. maximise the average income
c. maximise the average income, subject to a floor constraint
d. maximise the average income, subject to a range constraint

How do you feel about your ranking of these principles? (Circle the appropriate answer).

1. very unsure
2. unsure
3. no opinion
4. sure
5. very sure

To familiarise you with the sorts of choices you will be making, consider the following sample situation.

Sample Situation

Consider the following four income distributions (each of the money entries represents an annual peso income for a household):

Income distributions

Income Class	1	2	3	4
High	96,000	84,000	93,000	63,000
Medium high	81,000	66,000	72,000	60,000
Medium	72,000	60,000	63,000	57,000
Medium Low	39,000	51,000	48,000	48,000
Low	36,000	39,000	42,000	45,000
Average Income*				
Floor Income	36,000	39,000	42,000	45,000
Range	60,000	45,000	51,000	18,000

*For reasons which will become clear below, the average income is not shown for each income distribution.

You are to make a choice from among the four principles of justice which are mentioned above: (a) maximising the floor, (b) maximising the average, (c) maximising the average with a floor constraint, and (d) maximising the average with a range constraint. *If you choose (c) or (d), you will have to tell me what the floor or range constraint is before you can be said to have made a well-defined choice.* Your choice of a principle will select one of the four income distributions as the most just.

Only one of the income distributions is consistent with each principle. That means that your selection of a principle also selects one of the four income distributions as the one you prefer. Indicate your choice of principle here (either a, b, c, or d):____. If you chose (c) or (d), indicate the floor or range constraint here (peso value): _____.

In making this choice, recall that your choice will yield you a payoff. How will your choice determine your pay? If, for example you choose (a) to maximise the floor or low income, you will have picked that distribution (from the four in the sample question) which has the highest floor. (In this case distribution 4). This ensures that you would get at least 45,000 pesos if you were to be the worst-off individual. This is the most that a member of the low income class could get from any of these distributions.

Let us say you choose a principle which leads to the selection of distribution 4: maximising the floor or low income. After your choice has been made, five predetermined numbers will be used to determine your payoff. They represent the probability or chance that you will 'be in' each of the five income classes and hence receive the payoffs associated with the income class. The numbers add up to one, and are each some fraction bigger than zero and smaller than one. Thus, the numbers can be thought of as the proportion of the population (of some hypothetical society) which receives that particular income level in the distribution. You will be assigned to an income class using these proportions. *You will then*

receive one peso for each 10,000 pesos received by a member of the income class you have been assigned to.

To see how your payoff is calculated, again consider the illustration above and assume that you have chosen to maximise the floor income. Suppose the distribution of a fictitious population over these income classes has been set at:

Income Class	**Percentage of the Population**
high	5
medium high	10
medium	50
medium low	25
low	10

This means that you have a 5 per cent chance of being assigned to the highest income class. Were you to be so assigned, you would get a payoff of 6 pesos and thirty centavos - the highest in distribution #4 (in this case, the distribution which maximises the floor or low income). Similarly, you have a 10 per cent chance of being assigned to the medium high class, etc. If you were assigned to the medium class (in this example, the most likely with a likelihood of 50 per cent) you would get 5 pesos and seventy centavos. *These assignments to income classes will be made randomly* by your drawing a piece of paper from a bag. You may think of them as 'accidents of birth'.

Now what if you chose to maximise the average income? The average income in the society must be calculated by taking into account the proportion of the population which receives each particular income in the income distribution. Taking this into account the average income for each of the income distributions is as stated in the following table:

	Income distributions			
Income Class	1	2	3	4
High	96,000	84,000	93,000	63,000
Medium high	81,000	66,000	72,000	60,000
Medium	72,000	60,000	63,000	57,000
Medium Low	39,000	51,000	48,000	48,000
Low	36,000	39,000	42,000	45,000
Average Income	62,250	57,450	59,550	54,150
Floor Income	36,000	39,000	42,000	45,000
Range	60,000	45,000	51,000	18,000

If you choose the principle of maximising the average income, this would select distribution #1, which has an average income of 62,250 pesos. Therefore, on average, people selecting this principle in this example would receive 6 pesos and 20 centavos (rounded off).

In all the subsequent situations you will be given the average income for each income distribution but will *not* be told the proportion of the population in each income class. The proportions of the society in each income class will vary from one situation to another.

What if one chose to maximise the average with some constraint: say a floor constraint? How would this work? If you want to maximise the average while guaranteeing that no one receives an income below, let's say 42,000 pesos, only those income distributions with a floor of 42,000 pesos or more are acceptable: in this case distributions #3 and #4. Of these, distribution #3 has a higher average income and therefore maximises the average with a floor constraint of 42,000 pesos. Notice that lowering the constraint to 39,000 pesos, allows us to consider distribution #2 as well. This does not affect which distribution would be picked, however, because #3 has a higher average than #2. Lowering it still further, to 36,000 pesos, would, on the other hand, allow distribution #1 to be considered and selected (since #1 has the highest average).

Finally, let us consider what happens if we choose to maximise the average income with a range constraint. The most restrictive range constraint applicable here is 18,000 pesos, which would lead to a selection of distribution #4. If one increased the permitted difference between the high and low incomes to 45,000 pesos, income distribution #2 would be allowable and chosen since it has the higher average income.

Remember, the more demanding the constraint (that is, the smaller the range or the higher the floor), the larger the number of income distributions which are ruled out.

When you are shown your payoff, you will also be shown what you have gotten had you chosen any of the other three [principles]. This will permit you to see the consequences of your choices.

Before you make any choices of principles of justice, you are required to answer some questions to test your understanding of the principles of justice. You may refer to any part of the booklet in deciding on your answers. When you finish answering the questions, bring your answers to the moderator. If you make mistakes, you will be given chances to correct them - but do not erase any mistakes after the moderator has looked at them. The following information may help you to answer the following questions:

A. The range is the difference between the highest and lowest personal income levels in a distribution of personal income levels.

B. The floor is the lowest personal income level in a distribution of personal income levels.

C. If one choses to maximise the average 'with a floor constraint' of 30,000 pesos, this means: one selects that income distribution with the highest average subject to the constraint that everyone gets at least 30,000 pesos.

D. If one choses to maximise the average 'with a range constraint' of 20,000 pesos, this means: one selects the income distribution with the highest average subject to the constraint that the difference between the highest and lowest personal income level is no more than 20,000 pesos.

DO NOT GO TO THE NEXT SECTION UNTIL AFTER YOU PASS THE TEST.

TEST

	Income distributions			
Income Class	1	2	3	4
High	90,000	57,000	78,000	87,000
Medium high	75,000	54,000	60,000	66,000
Medium	60,000	48,000	54,000	54,000
Medium Low	45,000	42,000	45,000	42,000
Low	30,000	39,000	33,000	36,000
Average Income	60,000	48,000	54,000	57,000
Floor Income	_____	_____	_____	_____
Range	_____	_____	_____	_____

1. In the blank space in the distributions above write in the floor (or low) income for each distribution.

2. In the blank spaces in the distributions above write in the range for each distribution.

3. Indicate which distribution would be selected as a result of the application of each of the following principles.

   A. Maximisation of the floor income would select distribution _____.
   B. Maximisation of the average income would select distribution _____.
   C. Maximisation of the average income with a floor constraint of 34,500 pesos would select distribution _____.
   D. Maximisation of the average income with a range constraint of 48,000 pesos would select distribution _____.

4. If I were to choose to maximise the floor income, the lowest income I could get would be _____, the highest would be _____.

5. If I were to choose to maximise the average income, the lowest income I could get would be _____; the highest would be _____.

6. Please answer the following question, true or false: After choosing a principle of justice, my payoff will be determined by the probability of being in each income class and the luck of the draw. Circle one: true or false.

Please bring the handbook to the moderator for your test answers to be corrected.

Now that you have some acquaintance with the principles of justice and before you begin making choices in the situations below, please indicate your preferences for the principles. Rank them from most preferred to least preferred by placing in the blank spaces below the letters (a), (b), (c), and (d), corresponding to the principles. Indicate ties by placing the tied principles in the same blanks.

most preferred _____ _____ _____ _____ least preferred

a. maximise the floor income
b. maximise the average income
c. maximise the average income, subject to a floor constraint
d. maximise the average income, subject to a range constraint

How do you feel about your ranking of these principles? (Circle the appropriate answer).

1. very unsure
2. unsure
3. no opinion
4. sure
5. very sure

Choices with Payoffs

Situation A. Would you now please consider the income distributions in the next page and choose a principle of justice which you feel would yield the best choice of an income distribution for the society. On your tally sheet (to be provided by the moderator) place a check mark in the column labelled situation A opposite your choice of principle. Be sure to fill in the other information required if you choose to maximise with a constraint.

Remember, in making this choice, you will be determining a real money payoff for yourself.

To get your payoff recorded bring your tally sheet to the moderator.

DO NOT GO TO THE NEXT SITUATION UNTIL YOU HAVE TAKEN YOUR TALLY SHEET TO THE MODERATOR.

	Income distributions			
Income Class	1	2	3	4
High	84,000	105,000	90,000	75,000
Medium high	75,000	90,000	87,000	66,000
Medium	60,000	75,000	84,000	57,000
Medium Low	45,000	45,000	81,000	48,000
Low	36,000	30,000	18,000	39,000
Average Income	60,000	70,500	78,000	57,000
Floor Income	36,000	30,000	18,000	39,000
Range	48,000	75,000	72,000	36,000

Situation B. Would you now please consider the income distributions below and choose a principle of justice which you feel would yield the best choice of an income distribution for the society. On your tally sheet place a check mark in the column labelled situation B opposite your choice of principle. Be sure to fill in the other information required if you choose to maximise with a constraint.

Remember, in making this choice, you will be determining a real money payoff for yourself.

To get your payoff recorded bring your tally sheet to the moderator.

DO NOT GO TO THE NEXT SITUATION UNTIL YOU HAVE TAKEN YOUR TALLY SHEET TO THE MODERATOR.

Income distributions

Income Class	1	2	3	4
High	51,000	90,000	120,000	78,000
Medium high	48,000	75,000	90,000	72,000
Medium	45,000	60,000	75,000	66,000
Medium Low	42,000	45,000	60,000	60,000
Low	39,000	37,500	24,000	33,000
Average Income	44,400	57,600	70,650	62,700
Floor Income	39,000	37,500	24,000	33,000
Range	12,000	52,500	96,000	45,000

Situation C. Would you now please consider the income distributions below and choose a principle of justice which you feel would yield the best choice of an income distribution for the society. On your tally sheet place a check mark in the column labelled situation C opposite your choice of principle. Be sure to fill in the other information required if you choose to maximise with a constraint.

Remember, in making this choice, you will be determining a real money payoff for yourself. To get your payoff recorded bring your tally sheet to the moderator.

DO NOT GO TO THE NEXT SITUATION UNTIL YOU HAVE TAKEN YOUR TALLY SHEET TO THE MODERATOR.

Income distributions

Income Class	1	2	3	4
High	300,000	105,000	90,000	72,000
Medium high	90,000	90,000	75,000	69,000
Medium	60,000	75,000	69,000	66,000
Medium Low	45,000	60,000	45,000	63,000
Low	39,000	24,000	36,000	33,000
Average Income	58,500	67,050	60,000	62,130
Floor Income	39,000	24,000	36,000	33,000
Range	261,000	81,000	54,000	39,000

Situation D. Would you now please consider the income distributions below and choose a principle of justice which you feel would yield the best choice of an income distribution for the society. On your tally sheet place a check mark in the column labelled situation D opposite your choice of principle. Be sure to fill in the other information required if you choose to maximise with a constraint.

Remember, in making this choice, you will be determining a real money payoff for yourself. To get your payoff recorded bring your tally sheet to the moderator.

DO NOT GO TO THE NEXT SITUATION UNTIL YOU HAVE TAKEN YOUR TALLY SHEET TO THE MODERATOR.

Income distributions

Income Class	1	2	3	4
High	105,000	90,000	60,000	90,000
Medium high	90,000	84,000	54,000	84,000
Medium	75,000	78,000	48,000	72,000
Medium Low	60,000	72,000	42,000	60,000
Low	39,000	36,000	36,000	42,000
Average Income	70,650	73,500	46,500	68,100
Floor Income	39,000	36,000	36,000	42,000
Range	66,000	54,000	24,000	48,000

Now that you have been further familiarised with the four principles, please answer the following question:

Rank order, according to your preferences, the following 4 principles of justice by placing in the blanks below the letters (a), (b), (c) and (d), corresponding to the principles. Indicate ties by placing the tied principles in the same space.

most preferred _____ _____ _____ _____ least preferred

a. maximise the floor income
b. maximise the average income
c. maximise the average income, subject to a floor constraint
d. maximise the average income, subject to a range constraint

How do you feel about your ranking of these principles? (Circle the appropriate answer).

1. very unsure
2. unsure
3. no opinion
4. sure
5. very sure

PART II

In this part of the experiment participants are formed into groups of five individuals. Members of each group are to have a full and open discussion to determine which principle of justice is to be adopted and applied by the group. Members of the group must come to a unanimous agreement concerning which principle of justice is to be adopted. If unanimous agreement is not reached then the moderator will select, at random, any one of a range of distributions of personal incomes and randomly assign, to each member of the group, an income level out of this income distribution.

Assuming the group has decided upon a principle of justice, this principle is then employed to determine which distribution, out of a range of distributions, of income to adopt. (Each distribution specifies five payoff amounts.) Next each member of the group will be randomly assigned an income from the income distribution decided upon. This will determine your payoff. You must follow the procedures below for the discussion and voting phase.

Discussion Phase

You begin by having a group discussion about which principle you should adopt. The group can terminate this discussion anytime after five minutes. If after five minutes you feel nothing more can be gained by further discussion, you are to tell this to the moderator.

You *are not restricted,* in any way, *to the four principles of justice* mentioned above. Thus, you can discuss and later adopt other principles. Any one of you can introduce and begin discussion of any principle. But not just any principle is a principle. There are two requirements which a principle must meet to be considered as a principle of justice.

> First, the principle *cannot use names.* For example, a principle which gives all to one specified person is not permitted because it specifies a named person. However, a principle which gives all the income to some *unspecified* person *is* permitted.
>
> Second, only feasible 'just distributions' should be considered. For example, strict equality is not a principle since it may not be achievable.

Finally, there are a few requirements you should bear in mind if you wish to adopt a principle which involves a constraint. You should think of peso figures as annual family incomes in a democratic society of moderate scarcity.

If you wish to consider a range constraint, you must specify the peso amount.

If you wish to consider a floor constraint, you are not in a position to know what floors are achievable. Of course, there is a maximum achievable floor income in the set of income distributions. This means that you have two ways of specifying a floor constraint: (1) You can specify an absolute peso amount which you wish to have as a floor constraint. If that peso amount is above the maximum floor achievable in our set of income distributions, you will be assigned the income distribution with the highest achievable floor. (2) You can specify your floor constraint as a peso amount below the maximum floor achievable in our distributions. This will guarantee the existence of such a distribution. Nevertheless, you will not know what the absolute peso amount of this floor is until after the voting has been completed.

Choice Phase

After your discussion you, as a group, are to vote to adopt a principle of distributive justice. Your voting will be according to the following procedure. The group will adopt a

principle if, and only if, that principle is able to secure the *unanimous* support of the group against *all* other principles sketched above, plus any others which you have discussed. The principles are to be voted upon, two at a time. Only that principle which gets *unanimous* support in two-way contests against all other principles is actually adopted by the group. If no such proposal exists, then the group will have adopted no principle. In that case, any member of the group can ask for extra discussion, which can be terminated at any time using the procedure described above. A new vote would follow.

Your payoffs in this section will conform to the principle which you, as a group, adopt. TO REPEAT, REMEMBER THAT IF YOU, AS A GROUP, DO NOT ADOPT ANY PRINCIPLE THEN THE MODERATOR WILL SELECT ONE OF THE INCOME DISTRIBUTIONS AT RANDOM FOR YOU AS A GROUP. That choice of income distribution will conform to no particular characteristics. The income received by each member of the group is randomly selected out of the income distribution adopted by the moderator.

Remember: whatever income distribution is chosen, YOU WILL BE RANDOMLY PLACED IN AN INCOME CLASS IN THAT DISTRIBUTION, AND THAT DETERMINES THE MONEY INCOME YOU WILL RECEIVE. Are there any questions? If so, please ask them now, or at any time during this part of the experiment.

PART III

BACKGROUND DATA ON THE RESPONDENT

Please answer questions #1 to #11 by choosing from a five-point scale: (1) disagree strongly; (2) disagree somewhat; (3) neither agree nor disagree; (4) agree somewhat; and (5) agree strongly.

_____1. Relative equality of wealth is a good thing.
_____2. Government ought to have programs which give money to people like me when unavoidable events interrupt our ability to support ourselves.
_____3. A proper role of government is to modify the distribution of earned income.
_____4. Governments should ensure that all poor people can afford a relatively decent standard of living.
_____5. My expected monetary reward from this experiment was sufficient to affect my choices.
_____6. My reason for agreeing to participate in this experiment was to earn money.
_____7. My reason for agreeing to participate in this experiment was my interest in the project.
_____8. The greatest accomplishments in history were individual efforts.
_____9. In every country there are groups of people who are naturally inferior.
_____10. An individual's lifetime income is in part a result of many genetic and social accidents. The luckiest get the greatest talents and the highest rewards such as status and wealth. The least fortunate get the lowest abilities and opportunities, and receive the associated costs of poverty.
_____11. Life would hardly be worth living in a society in which I couldn't give someone else pleasure by my actions.

For question no. 12, express your answers as percentages on a 0-100 scale for each of the responses.

12. What percentage of your college expenses are met by each of the following:

(a) parent's help;	_____%
(b) income you earn;	_____%
(c) trust monies;	_____%
(d) scholarships;	_____%
(e) loans;	_____%

(f) spouse's help; or	_____%
(g) others (specify). _____	_____%
TOTAL	100%

13. What minimum annual income (in thousands of today's pesos) do you think you will find satisfactory as your starting salary for your first job after graduation? _____

14. What minimum annual income (in thousands of today's pesos) do you think you will find satisfactory at age thirty-five? _____

15. What minimum annual income (in thousands of today's pesos) do you think you will find satisfactory at age fifty? _____

16. Rate your ideological preference on a scale from 1 (most conservative) to 5 (most liberal). _____

a.	most conservative	1
b.	conservative	2
c.	somewhere in the middle of being conservative and liberal	3
d.	liberal	4
e.	most liberal	5

17. Suppose someone offered to sell you a lottery ticket. In this lottery, one out of every four tickets will win 1,500 pesos. What is the most you would be willing to pay for it? _____

18. Suppose you have a lottery ticket. In this lottery, one out of three tickets will win 1,500 pesos. If someone asked you to sell them the ticket, what is the minimum price you would sell it for? _____

19. For how many years of your life was your father employed before you were seven? (If you are not sure, estimate.)_____

20. For how many years of your life was your mother employed before you were seven? (If you are not sure, estimate.)_____

21. Attitude to ideological preferences. Generally, you usually think of yourself as: _____

a. With conservative ideas
b. With a moderately reformist attitude
c. Independent
d. No preference

22. With regard to each ideological preference, you feel: (a) complete opposition; (b) somewhat in opposition; (c) somewhere in the middle of opposition and support; (d) somewhat liberal; and (e) complete support. Indicate the letter in the spaces provided for below:

a. With conservative ideas ___
b. With a moderately reformist attitude ___
c. Independent ____

23. For some people to succeed, others must fail. Answer yes or no _____.

24. Describe your future career plans and aspirations. Answer yes or no in the spaces provided for.

a. Public Service? _____
b. Politics? _____
c. Private Business? _____
d. Private professional? _____

PLEASE RETURN THE HANDBOOK TO THE MODERATOR. THANK YOU.

Reference: Frohlich, N. and Oppenheimer, J. ,1992. *Choosing Justice:an experimental approach in ethical theory,* University of California Press, Berkeley.

Annex II
(Chapter 2)

HANDBOOK B

This handbook concerns people's attitudes to the distribution of monetary gains or losses among members of committees. I am interested in getting your views on a range of issues relating to the distribution of monetary gains and losses, where, in an initial situation, you are faced with considerable uncertainty as to what future income you may receive. Because it is about attitudes there are no 'right' or 'wrong' answers to central issues. This handbook does not aim to test your intelligence. Your responses will help shed some light on how Filipinos perceive distribution of income among members of the society given considerable uncertainty as to future relevant events. The handbook is anonymous so please do not write your name on it.

Thank you for your participation.

The experiment devised here attempts to determine an answer to the following question: 'How would monetary gains or losses among members of committees be distributed in a situation where, in the initial situation, individuals are faced with considerable uncertainty as to future relevant events?' The reason for posing this question is that the wealth and income any individual in the Philippines will have access to during her/his lifetime will be influenced, considerably, by unpredictable events and circumstances. Casual observation of Filipino society suggests that this uncertainty results in personal incomes being unequally distributed throughout this community. Societies can deal with these inequities and risks by adopting suitable income redistribution policies. The purpose of the experiment performed here is to attempt to determine which redistribution policies will be adopted in initial situations where individuals are faced with considerable uncertainty as to what future level of income they may receive. The experiments are constructed in such a way as to face participants in this experiment with just such an uncertain situation.

The experiment is divided into three parts.

In the first part of the experiment each of you will be introduced to four possible rules for distributing monetary gains and losses among committee members. Later on you will consider some sample income distributions and make some choices. These choices will have real monetary consequences for you. Your pay, or reward, for the first part of the experiment will be based on your choices. You will have one hour to complete the first part during which time you will be given a series of questions. These questions are merely to determine if you have understood the concepts which are being used in the experiment. If you do not answer the questions correctly, then you are to go back to the review material and correct wrong answers. Once you have mastered the material, you can go on to make choices for which you will be paid. If you do not learn the material in a reasonable amount of time, you will not be able to earn as much money as possible since you must finish the first part of the experiment within one hour. But you should have plenty of time to finish this part of the experiment. Everyone will go on to the second part either after one hour or after everyone has finished Part 1, whichever occurs first.

In the second part of the experiment you will be asked, as a group, to discuss possible rules for distributing monetary gains or losses. After the discussion, you will be asked to reach a group decision on which rule for distributing the money you like best. The pay you receive in Part II of the experiment will be based on the rule which the group chooses.

In the third part you will be asked some background questions about yourself. Upon completion of the third part you will receive the sum in cash, of your earnings from the two parts of the experiment. The money you receive is to be yours alone. *No discussion, or agreement, to share earnings is permitted.*

PART 1

This experiment is concerned with committee decisions about rules to distribute income among members of the society which *includes you.* Let us begin by discussing the effect of different rules on what you will be provided with in the experiment. A number of rules have been suggested for adoption for the distribution of income and we shall illustrate them by pointing out four such rules. But there are obviously other possible alternatives. *You may well think of some alternatives yourself!*

1. Maximising the Floor Income
The best rule for distributing income is that which maximises the floor (or lowest) income in the society.

The rule considers only the income of the worst-off individual in society. In judging among income distributions, the distribution which ensures the poorest person (who might be you) the highest level of income is considered to be the best rule.

2. Maximising the Average Income

The best rule for distributing incomes is that which maximises the level of average income in the society.

Since you don't know what level of income you may receive, application of this rule maximises your average, or mathematically expected, income.

3. Maximising the Average with a Floor Constraint of Peso _____

The best rule for distributing income is that which maximises the average income only after a certain specified minimum income is guaranteed to everyone.

Such a rule ensures that the attempt to maximise the average is constrained so as to ensure that individuals 'at the bottom' receive a specified minimum. If this rule is chosen then one must specify the value of the floor (lowest income).

4. Maximising the Average with a Range Constraint of Peso_____

The best rule for distributing income is that which attempts to maximise the average income only after guaranteeing that the difference between the smallest and the largest incomes (that is, the range of personal incomes) in the society is not greater than a specified amount.

Such a rule ensures that the attempt to maximise the average does not allow income differences in income levels received by rich and poor individuals to exceed a specified amount. If this principle is chosen then one must specify the peso difference between the high and low incomes.

Of course, there are other possible rules, and you may think of some of them.

Now, that you have been familiarised with these four rules, please answer the following questions:

Rank order, according to your preferences, the following 4 rules for distributing income by placing in the blanks below the letters (a), (b), (c), and (d), signifying the rules. Indicate ties by placing the tied rules in the same space.

most preferred _____ _____ _____ _____ least preferred

a. maximise the floor income
b. maximise the average income
c. maximise the average income, subject to a floor constraint
d. maximise the average income, subject to a range constraint

How do you feel about your ranking of these rules? (Circle the appropriate answer.)

1. very unsure
2. unsure
3. no opinion
4. sure
5. very sure

To familiarise you with the sorts of choices you will be making, consider the following sample situation.

Sample Situation

Consider the following four income distributions (each of the money entries represents a yearly peso income for a household):

Income distributions

Income Class	1	2	3	4
High	96,000	84,000	93,000	63,000
Medium high	81,000	66,000	72,000	60,000
Medium	72,000	60,000	63,000	57,000
Medium Low	39,000	51,000	48,000	48,000
Low	36,000	39,000	42,000	45,000
Average Income*				
Floor Income	36,000	39,000	42,000	45,000
Range	60,000	45,000	51,000	18,000

* For reasons which will become clear below, the average income is not shown for each income distribution.

You are to make a choice from among the four rules which are mentioned above: (a) maximising the floor, (b) maximising the average, (c) maximising the average with a floor constraint, and (d) maximising the average with a range constraint. *If you choose (c) or (d), you will have to tell me what the floor or range constraint is before you can be said to have made a well-defined choice.* Your choice of a rule will be applied to the income distributions above.

Only one of the income distributions is consistent with each rule. That means that your selection of a rule also selects one of the four income distributions as the one you prefer. Indicate your choice of a rule here (either a, b, c, or d) ____. If you choose (c) or (d), indicate the floor or range constraint here (peso value): _____.

In making this choice, recall that your choice will yield you a payoff. How will your choice determine your pay? If, for example you choose (a) to maximise the floor or low income, you will have picked that distribution (from the four in the sample question) which has the highest floor. (In this case distribution 4). This ensures that you would get at least 45,000 pesos if you were to be the worst-off individual. This is the most that a member of the low income class could get from any of these distributions.

Let us say you choose a rule which leads to the selection of distribution 4: maximising the floor or low income. After your choice has been made, five predetermined numbers will be used to determine your payoff. They represent the probability or chance that you will 'be in' each of the five income classes and hence receive the payoffs associated with the income class. The numbers add up to one, and are each some fraction bigger than zero and smaller than one. Thus the numbers can be thought of as the proportion of the population (of some hypothetical society) which receives that particular income level in the distribution. You will be

assigned to an income class using these proportions. *You will then receive one peso for each 10,000 pesos received by a member of the income class you have been assigned to.*

To see how your payoff is calculated, again consider the illustration above and assume that you have chosen to maximise the floor income. Suppose the distribution of a fictitious population over these income classes has been set at:

Income Class	**Percentage of the Population**
high	5
medium high	10
medium	50
medium low	25
low	10

This means that you have a 5 per cent chance of being assigned to the highest income class. Were you to be so assigned, you would get a payoff of 6 pesos and thirty centavos – the highest in distribution #4 (in this case, the distribution which maximises the floor or low income). Similarly, you have a 10 per cent chance of being assigned to the medium high class, etc. If you were assigned to the medium class (in this example, the most likely with a likelihood of 50 per cent) you would get 5 pesos and seventy centavos. *These assignments to income classes will be made randomly* by your drawing a piece of paper from a bag. You may think of them as 'accidents of birth'.

Now what if you chose to maximise the average income? The average income in the society must be calculated by taking into account the proportion of the population which receives each particular income in the income distribution. Taking this into account the average income for each of the income distributions is as stated in the following table:

	Income distributions			
Income Class	1	2	3	4
High	96,000	84,000	93,000	63,000
Medium high	81,000	66,000	72,000	60,000
Medium	72,000	60,000	63,000	57,000
Medium Low	39,000	51,000	48,000	48,000
Low	36,000	39,000	42,000	45,000
Average Income	62,250	57,450	59,550	54,150
Floor Income	36,000	39,000	42,000	45,000
Range	60,000	45,000	51,000	18,000

If you choose the rule of maximising the average income, this would select distribution #1, which has an average income of 62,250 pesos. Therefore, on average, people selecting this rule in this example would receive 6 pesos and 20 centavos (rounded off).

In all the subsequent situations you will be given the average income for each income distribution but will *not* be told the proportion of the population in each income class. The proportions of the society in each income class *will vary* from one situation to another.

What if one chose to maximise the average with some constraint: say a floor constraint? How would this work? If you want to maximise the average while guaranteeing that no one receives an income below, let's say 42,000 pesos, only those income distributions with a floor of 42,000 pesos or more are acceptable: in this case distributions #3 and #4. Of these, distribution #3 has a higher average income and therefore maximises the average with a floor constraint of 42,000 pesos. Notice that lowering the constraint to 39,000 pesos, allows us to consider distribution #2 as well. This does not affect which distribution would be picked, however, because #3 has a higher average than #2. Lowering it still further, to 36,000 pesos, would, on the other hand, allow distribution #1 to be considered *and selected* (since #1 has the highest average).

Finally, let us consider what happens if we choose to maximise the average income with a range constraint. The most restrictive range constraint applicable here is 18,000 pesos, which would lead to a selection of distribution #4. If one increased the permitted difference between the high and low incomes to 45,000 pesos, income distribution #2 would be allowable and chosen since it has the higher average income.

Remember, the more demanding the constraint (that is, the smaller the range or the higher the floor), the larger the number of income distributions which are ruled out.

When you are shown your payoff, you will also be shown what you have received had you chosen any of the other three rules. This will permit you to see the consequences of your choices.

Before you make any choices of rules of income distribution, you are required to answer some questions to test your understanding of the rules. You may refer to any part of the booklet in deciding on your answers. When you finish answering the questions, bring your answers to the moderator. If you make mistakes, you will be given chances to correct them - but do not erase any mistakes after the moderator has looked at them. The following information may help you to answer the following questions:

A. The range is the difference between the highest and lowest personal income levels in a distribution of personal income levels.
B. The floor is the lowest personal income level in a distribution of personal income levels.
C. If one choses to maximise the average 'with a floor constraint' of 30,000 pesos, this means: one selects that income distribution with the highest average subject to the constraint that everyone gets at least 30,000 pesos.
D. If one choses to maximise the average 'with a range constraint' of 20,000 pesos, this means: one selects the income distribution with the highest average subject to the constraint that the difference between the highest and lowest personal income level is no more than 20,000 pesos.

DO NOT GO TO THE NEXT SECTION UNTIL AFTER YOU PASS THE TEST.

TEST

	Income distributions			
Income Class	1	2	3	4
High	90,000	57,000	78,000	87,000

Medium high	75,000	54,000	60,000	66,000
Medium	60,000	48,000	54,000	54,000
Medium Low	45,000	42,000	45,000	42,000
Low	30,000	39,000	33,000	36,000
Average Income	60,000	48,000	54,000	57,000
Floor Income	_____	_____	_____	_____
Range	_____	_____	_____	_____

---

1. In the blank space in the distributions above write in the floor (or low) income for each distribution.

2. In the blank spaces in the distributions above write in the range for each distribution.

3. Indicate which distribution would be selected as a result of the application of each of the following rules.
   A. Maximisation of the floor income would select distribution _____.
   B. Maximisation of the average income would select distribution _____.
   C. Maximisation of the average income with a floor constraint of 34,500 pesos would select distribution _____.
   D. Maximisation of the average income with a range constraint of 48,000 pesos would select distribution _____.

4. If I were to choose to maximise the floor income, the lowest income I could get would be _____, the highest would be _____.

5. If I were to choose to maximise the average income, the lowest income I could get would be _____; the highest would be _____.

6. Please answer the following question, true or false: After choosing a rule about the distribution of income, my payoff will be determined by the probability of being in each income class and the luck of the draw. Circle one: true or false.

Please bring the handbook to the moderator for your test answers to be corrected.

Now that you have some acquaintance with the possible rules for distributing income, and before you begin making choices in the situations below, please indicate your preferences for the rules. Rank them from most preferred to least preferred by placing the letters (a), (b), (c), and (d), corresponding to the rules, in the blank spaces below. Indicate ties by placing tied rules in the same blanks.

most preferred _____ _____ _____ _____ least preferred
a. maximise the floor income
b. maximise the average income
c. maximise the average income, subject to a floor constraint
d. maximise the average income, subject to a range constraint

How do you feel about your ranking of these rules? (Circle the appropriate answer.)
1. very unsure
2. unsure
3. no opinion
4. sure
5. very sure

Choices with Payoffs

Situation A. Would you now please consider the income distributions in the next page and choose a rule which you feel would yield the best choice of an income distribution for the society. On your tally sheet (to be provided by the moderator) place a check mark in the column labelled situation A opposite your choice of rule. Be sure to fill in the other information required if you choose to maximise with a constraint.

Remember, in making this choice, you will be determining a real money payoff for yourself.

To get your payoff recorded bring your tally sheet to the moderator.

DO NOT GO TO THE NEXT SITUATION UNTIL YOU HAVE TAKEN YOUR TALLY SHEET TO THE MODERATOR.

	Income distributions			
Income Class	1	2	3	4
High	84,000	105,000	90,000	75,000
Medium high	75,000	90,000	87,000	66,000
Medium	60,000	75,000	84,000	57,000
Medium Low	45,000	45,000	81,000	48,000
Low	36,000	30,000	18,000	39,000
Average Income	60,000	70,500	78,000	57,000
Floor Income	36,000	30,000	18,000	39,000
Range	48,000	75,000	72,000	36,000

Situation B. Would you now please consider the income distributions below and choose a rule which you feel would yield the best choice of an income distribution for the society. On your tally sheet place a check mark in the column labelled situation B opposite your choice of rule. Be sure to fill in the other information required if you choose to maximise with a constraint.

Remember, in making this choice, you will be determining a real money payoff for yourself. To get your payoff recorded bring your tally sheet to the moderator. DO NOT GO TO THE NEXT SITUATION UNTIL YOU HAVE TAKEN YOUR TALLY SHEET TO THE MODERATOR.

	Income distributions			
Income Class	1	2	3	4
High	51,000	90,000	120,000	78,000
Medium high	48,000	75,000	90,000	72,000
Medium	45,000	60,000	75,000	66,000
Medium Low	42,000	45,000	60,000	60,000
Low	39,000	37,500	24,000	33,000
Average Income	44,400	57,600	70,650	62,700

Floor Income	39,000	37,500	24,000	33,000
Range	12,000	52,500	96,000	45,000

Situation C. Would you now please consider the income distributions in the next page and choose a rule which you feel would yield the best choice of an income distribution for the society. On your tally sheet place a check mark in the column labelled situation C opposite your choice of rule. Be sure to fill in the other information required if you choose to maximise with a constraint.

Remember, in making this choice, you will be determining a real money payoff for yourself. To get your payoff recorded bring your tally sheet to the moderator. DO NOT GO TO THE NEXT SITUATION UNTIL YOU HAVE TAKEN YOUR TALLY SHEET TO THE MODERATOR.

	Income distributions			
Income Class	1	2	3	4
High	300,000	105,000	90,000	72,000
Medium high	90,000	90,000	75,000	69,000
Medium	60,000	75,000	69,000	66,000
Medium Low	45,000	60,000	45,000	63,000
Low	39,000	24,000	36,000	33,000
Average Income	58,500	67,050	60,000	62,130
Floor Income	39,000	24,000	36,000	33,000
Range	261,000	81,000	54,000	39,000

Situation D. Would you now please consider the income distributions below and choose a rule which you feel would yield the best choice of an income distribution for the society. On your tally sheet place a check mark in the column labelled situation D opposite your choice of rule. Be sure to fill in the other information required if you choose to maximise with a constraint.

Remember, in making this choice, you will be determining a real money payoff for yourself. To get your payoff recorded bring your tally sheet to the moderator.

DO NOT GO TO THE NEXT SITUATION UNTIL YOU HAVE TAKEN YOUR TALLY SHEET TO THE MODERATOR.

	Income distributions			
Income Class	1	2	3	4
High	105,000	90,000	60,000	90,000
Medium high	90,000	84,000	54,000	84,000
Medium	75,000	78,000	48,000	72,000
Medium Low	60,000	72,000	42,000	60,000
Low	39,000	36,000	36,000	42,000
Average Income	70,650	73,500	46,500	68,100

Floor Income	39,000	36,000	36,000	42,000
Range	66,000	54,000	24,000	48,000

Now that you have been further familiarised with the four rules, please answer the following question:

Rank order, according to your preferences, the following 4 rules by placing in the blanks below the letters (a), (b), (c) and (d), corresponding to the rules. Indicate ties by placing the tied rules in the same space.

most preferred _____ _____ _____ _____ least preferred
a. maximise the floor income
b. maximise the average income
c. maximise the average income, subject to a floor constraint
d. maximise the average income, subject to a range constraint

How do you feel about your ranking of these rules? (Circle the appropriate answer.)

1. very unsure
2. unsure
3. no opinion
4. sure
5. very sure

PART II

In this part of the experiment participants are formed into groups of five individuals. Members of each group are to have a full and open discussion to determine which rule for the distribution of income is to be adopted and applied by the group. Members of the group must come to a unanimous agreement concerning which rule for distributing income is to be adopted. If unanimous agreement is not reached then the moderator will select, at random, any one of a range of distributions of personal incomes and randomly assign, to each member of the group, an income level out of this income distribution.

Assuming the group has decided upon a rule for distributing income, this rule is then employed to determine which distribution, out of a range of distributions, of income to adopt. (Each distribution specifies five payoff amounts.) Next each member of the group will be randomly assigned an income from the income distribution decided upon. This will determine your payoff.

You must follow the procedures below for the discussion and voting phase.

Discussion Phase

You begin by having a group discussion about which rule you should adopt. The group can terminate this discussion anytime after five minutes. If after five minutes you feel nothing more can be gained by further discussion, you are to tell this to the moderator.

You *are not restricted,* in any way, *to the four rules* mentioned above. Thus, you can discuss and later adopt other rules. Any one of you can introduce and begin discussion

of any rule. But not just any rule is a rule. There are two requirements which a rule must meet to be considered as a rule.

> First, the rule *cannot use names*. For example, a rule which gives all to one specified person is not permitted because it specifies a named person. However, a rule which gives all the income to some *unspecified* person *is* permitted.
>
> Second, only feasible income distributions should be considered. For example, strict equality is not a rule since it may not be achievable.

Finally, there are a few requirements you should bear in mind if you wish to adopt a rule which involves a constraint. You should think of peso figures as annual family incomes in a democratic society of moderate scarcity.

If you wish to consider a range constraint, you must specify the peso amount.

If you wish to consider a floor constraint, you are not in a position to know what floors are achievable. Of course, there is a maximum achievable floor income in the set of income distributions. This means that you have two ways of specifying a floor constraint: (1) You can specify an absolute peso amount which you wish to have as a floor constraint. If that peso amount is above the maximum floor achievable in our set of income distributions, you will be assigned the income distribution with the highest achievable floor. (2) You can specify your floor constraint as a peso amount below the maximum floor achievable in our distributions. This will guarantee the existence of such a distribution. Nevertheless, you will not know what the absolute peso amount of this floor is until after the voting has been completed.

Choice Phase

After your discussion you, as a group, are to vote to adopt a rule. Your voting will be according to the following procedure. The group will adopt a rule if, and only if, that rule is able to secure the *unanimous* support of the group against *all* other rules sketched above, plus any others which you have discussed. The rules are to be voted upon, two at a time. Only that rule which gets *unanimous* support in two-way contests against all other rules is actually adopted by the group. If no such proposal exists, then the group will have adopted no rule. In that case, any member of the group can ask for extra discussion, which can be terminated at any time using the procedure described above. A new vote would follow.

Your payoffs in this section will conform to the rule which you, as a group, adopt. TO REPEAT, REMEMBER THAT IF YOU, AS A GROUP, DO NOT ADOPT ANY PRINCIPLE THEN THE MODERATOR WILL SELECT ONE OF THE INCOME DISTRIBUTIONS AT RANDOM FOR YOU AS A GROUP. That choice of income distribution will conform to no particular characteristics. The income received by each member of the group is randomly selected out of the income distribution adopted by the moderator.

Remember: whatever income distribution is chosen, YOU WILL BE RANDOMLY PLACED IN AN INCOME CLASS IN THAT DISTRIBUTION, AND THAT DETERMINES THE MONEY INCOME YOU WILL RECEIVE. Are there any questions? If so, please ask them now, or at any time during this part of the experiment.

PART III

BACKGROUND DATA ON THE RESPONDENT

Please answer questions #1 to #11 by choosing from a five-point scale: (1) disagree strongly; (2) disagree somewhat; (3) neither agree nor disagree; (4) agree somewhat; and (5) agree strongly.

_____1. Relative equality of wealth is a good thing.
_____2. Government ought to have programs which give money to people like me when unavoidable events interrupt our ability to support ourselves.
_____3. A proper role of government is to modify the distribution of earned income.
_____4. Governments should ensure that all poor people can afford a relatively decent standard of living.
_____5. My expected monetary reward from this experiment was sufficient to affect my choices.
_____6. My reason for agreeing to participate in this experiment was to earn money.
_____7. My reason for agreeing to participate in this experiment was my interest in the project.
_____8. The greatest accomplishments in history were individual efforts.
_____9. In every country there are groups of people who are naturally inferior.
_____10. An individual's lifetime income is in part a result of many genetic and social accidents. The luckiest get the greatest talents and the highest rewards such as status and wealth. The least fortunate get the lowest abilities and opportunities, and receive the associated costs of poverty.
_____11. Life would hardly be worth living in a society in which I couldn't give someone else pleasure by my actions.

For question no. 12, express your answers as percentages on a 0-100 scale for each of the responses.

12. What percentage of your college expenses are met by each of the following:

(a) parent's help;	_____%
(b) income you earn;	_____%
(c) trust monies;	_____%
(d) scholarships;	_____%
(e) loans;	_____%
(f) spouse's help; or	_____%
(g) others (specify). _____	_____%
TOTAL	100%

13. What minimum annual income (in thousands of today's pesos) do you think you will find satisfactory as your starting salary for your first job after graduation? _____

14. What minimum annual income (in thousands of today's pesos) do you think you will find satisfactory at age thirty-five? _____

15. What minimum annual income (in thousands of today's pesos) do you think you will find satisfactory at age fifty? _____

16. Rate your ideological preference on a scale from 1 (most conservative) to 5 (most liberal).
_____

a.	most conservative	1
b.	conservative	2
c.	somewhere in the middle of being conservative and liberal	3
d.	liberal	4
e.	most liberal	5

17. Suppose someone offered to sell you a lottery ticket. In this lottery, one out of every four tickets will win 1,500 pesos. What is the most you would be willing to pay for it? _____

18. Suppose you have a lottery ticket. In this lottery, one out of three tickets will win 1,500 pesos. If someone asked you to sell them the ticket, what is the minimum price you would sell it for? _____

19. For how many years of your life was your father employed before you were seven? (If you are not sure, estimate.)_____

20. For how many years of your life was your mother employed before you were seven? (If you are not sure, estimate.)_____

21. Attitude to ideologies. Generally, you usually think of yourself as: _____

a. With conservative ideas
b. With a moderately reformist attitude
c. Independent
d. No preference

22. With regard to each ideological preference, you feel: (a) complete opposition; (b) somewhat in opposition; (c) somewhere in the middle of opposition and support; (d) somewhat liberal; and (e) complete support. Indicate the letter in the spaces provided for below:

a. With conservative ideas ___
b. With a moderately reformist attitude ___
c. Independent ____

23. For some people to succeed, others must fail. Answer yes or no _____.

24. Describe your future career plans and aspirations. Answer yes or no in the spaces provided for.

a. Public Service? _____
b. Politics? _____
c. Private Business? _____
d. Private professional? _____

PLEASE RETURN THE HANDBOOK TO THE MODERATOR. THANK YOU.

Reference: Frohlich, N. and Oppenheimer, J. 1992. *Choosing Justice: an experimental approach in ethical theory*, University of California Press, Berkeley.

Annex 3
(Chapter 2)

HANDBOOK C

This handbook concerns people's attitudes to distributive justice. I am interested in getting <u>your</u> opinions on a range of issues relating to the justice of income redistribution policies where, in an initial situation, you are faced with considerable uncertainty as to what future income you may receive. Because it is about attitudes there are no 'right' or 'wrong' answers to central issues. This handbook does <u>not</u> aim to test your intelligence. Your responses will help shed some light on how Filipinos perceive distributive justice given considerable uncertainty as to future relevant events. The handbook is anonymous so please do not write your name on it.

Thank you for your participation.

The experiment devised here attempts to determine an answer to the following question: 'What is a just distribution of income in a situation where, in the initial situation, individuals are faced with considerable uncertainty as to future relevant events?' The reason for posing this question is that the wealth and income any individual in the Philippines will have access to during her/his lifetime will be influenced, considerably, by unpredictable events and circumstances. Casual observation of Filipino society suggests that this uncertainty results in personal incomes being unequally distributed throughout this community. Societies can deal with these inequities and risks by adopting suitable income redistribution policies. The purpose of the experiment performed here is to attempt to determine which redistribution policies are thought to be just in initial situations where individuals are faced with considerable uncertainty as to what future level of income they may receive. The experiments are constructed in such a way as to face participants in this experiment with just such an uncertain situation.

The experiment is divided into four parts.

In the first part of the experiment each of you will be introduced to a few theories of just income distribution. You will have an hour to complete the first part, during which time you will be asked to answer some questions on the material. You will be paid 25 centavos for every question you answer correctly on this material the first time you take the test. These questions are merely to determine if you have understood the concepts which are being used in the experiment. If you do not answer the questions correctly, then you *are to go back to the review material and correct wrong answers.* Once you have mastered the material, you can try the missed questions again in another test, this time getting ten centavos for each correct answer. Obviously, you will not be able to earn as much money as possible if you do not do well on the test. Everyone will go on to the second part after one hour, or after everyone has finished Part 1, whichever occurs first.

In the second part of the experiment you will be asked, as a group, to discuss notions of justice. After the discussion, you will be asked to reach a group decision on which principle of justice you like best.

In the third part you will be required to perform some tasks to earn some money. Your earned income will then be taxed or supplemented so that the final distribution of income in this part is in accordance with the principle adopted by the group in Part II.

In the last part you will be asked some background questions about yourself. Upon completion of the fourth part you will receive the sum in cash, of your earnings from the earlier part of the experiments. The money you receive is to be yours alone. *No discussion, or agreement, to share your final pay is permitted. Any such discussions may void the experiment and lead to your earning nothing.*

PART 1

This experiment is concerned with the justice of different income distributions. Let us begin by discussing some ways of judging the justice of an income distribution. A number of principles have been suggested for these sorts of judgments and we shall illustrate them by pointing out four such principles. But there are obviously other possible alternatives. *You may well think of some alternatives yourself!*

1. Maximising the Floor Income
The most just distribution of income is that which maximises the floor (or lowest) income in the society.

The principle considers only the welfare of the worst-off individual in society. In judging among income distributions, the distribution which ensures the poorest person the highest level of income is considered to be the most just.

2. Maximising the Average Income

The most just distribution of income is that which maximises the level of the average income in the society.

Since you do not know what level of income you may receive, application of this rule maximises your average, or mathematically expected, income.

3. Maximising the Average with a Floor Constraint of Peso _____

The most just distribution of income is that which maximises the average income only after a certain specified minimum income is guaranteed to everyone.

Such a principle ensures that the attempt to maximise the average is constrained so as to ensure that individuals 'at the bottom' receive a specified minimum. If this principle is chosen then one must specify the value of the floor (lowest income).

4. Maximising the Average with a Range Constraint of Peso_____

The most just distribution of income is that which attempts to maximise the average income only after guaranteeing that the difference between the poorest and richest individuals' incomes (that is, the range of personal incomes) in the society is not greater than a specified amount.

Such a principle ensures that the attempt to maximise the average does not allow income differences in income levels received by rich and poor individuals to exceed a specified amount. If this principle is chosen then one must specify the peso difference between the high and low incomes.

Of course, there are other possible principles, and you may think of some of them.

Now, that you have been familiarised with these four principles, please answer the following questions:

Rank order, according to your preferences, the following 4 principles of distributive justice by placing in the blanks below the letters (a), (b), (c), (d), signifying the principles. Indicate ties by placing the tied principles in the same space.

most preferred _____ _____ _____ _____ least preferred

a. maximise the floor income
b. maximise the average income
c. maximise the average income, subject to a floor constraint
d. maximise the average income, subject to a range constraint

How do you feel about your ranking of these principles? (Circle the appropriate answer).

1. very unsure
2. unsure
3. no opinion
4. sure
5. very sure

To familiarise you with the sorts of choices you will be making, consider the sample situation in the next page.

Sample Situation

A sample of four income distributions is shown below. Each of the money entries represents an annual peso income for a household.

	Income distributions			
Income Class	1	2	3	4
High	96,000	84,000	93,000	63,000
Medium high	81,000	66,000	72,000	60,000
Medium	72,000	60,000	63,000	57,000
Medium Low	39,000	51,000	48,000	48,000
Low	36,000	39,000	42,000	45,000

The amount that you would be able to keep would depend upon the principle of income distribution chosen. It is one thing to make one's choice of an income distribution principle when one is fully aware of one's individual talents and place in society. It is quite another to do so without such knowledge. Later you will be earning money by working at a task which, as yet, is unspecified. You do not know how well you will be able to perform that task, how much income you will generate, and hence in which income class you will be in. Recall that in the next part of the experiment you will try to reach a decision, with the other members of your group, as to which principle will govern the actual payments which will be made to each of you as a member of the group. Thus your choice of a principle of income distribution will, to a greater degree, determine how much you will be paid.

Precisely how will the selection of a principle relate to your earnings? To know this you must understand how your earned income will be redistributed on the basis of the principle chosen. Let us go over four principles listed above, and illustrate how income would be redistributed to be in conformity with each of these principles.

1. Maximising the floor requires that some of the income of persons who earn above the floor is used to finance an income transfer to the person receiving the minimum income in the group.

In the instance of this principle of justice your final (after-tax or after-transfer) income is going to be tied to the task you perform. To achieve this end in this experiment the floor income to be maximised is set at 80 per cent of the mean income for the group. We do this by taxing each of the individuals who earn more than 80 per cent of the mean by the same percentage of their incomes above the floor. The amount taxed away is transferred to low income recipients until the lowest income recipient receives the floor income. It is emphasised that the floor income is not set at 100 per cent of the mean income for the group in recognition of the argument that, to do so, would adversely affect the incentive to work diligently at performing the task set.

To explain further, when there is a link between income and work, some people feel that there should be a link between *more* or *better*

work and more income. Most supporters of this position argue that if an absolutely egalitarian income distribution was imposed there would be less work, less production, and hence less total income. This, therefore, could lead to less income for those at the bottom. Thus to maximise the floor some have argued that one needs to keep *some* incentives to encourage productive work.

2. Maximising the average, we assume means giving everyone as much incentive to produce as possible. We interpret this to mean that there will be no redistribution and, hence, no taxation.

3. Maximising the average with a floor constraint also requires a tax-cum-subsidy system.

In this case, all the incomes above the chosen floor are taxed at the same percentage rate so that enough tax revenue is raised to finance income transfers so that all receive at least the floor income level. Thus each person's ranking - by income - above the floor stays the same, but the differences are compressed because of the taxes and subsidies.

One complication must be considered here. Since the idea is to continue having incentives present to maintain productivity and income levels, we insist that if the floor is higher than 80 per cent of the average income, then the floor is set at 80 per cent of the average. This ensures that the minimal level of incentive is maintained and that the floor can never be higher under this principle than it could be if one were merely to maximise the income of the poorest member of the group.

4. Maximising the average with a range constraint means that the difference between the highest and the lowest income is restricted in accordance with the principle chosen. All the incomes that are 'too low' (that is, the range between them and the top income is bigger than the acceptable limit) would receive additional income raised by taxing the others. All others would be taxed so that the money raised, when transferred to the individuals with the low incomes, would reduce the range to the required level. This will keep the average income unchanged and keep the income differences between the individuals in the same proportion as they were before taxes.

To illustrate, imagine that five persons in a society respectively have earned incomes of: 3,000; 15,000; 21,000; 33,000; and 303,000 (all in pesos). Then the average income is 75,000 pesos and the range of earned income (between 3,000 pesos per year and 303,000 pesos) is 300,000 pesos. If that society had a principle to maximise the average while restricting the range to 150,000, all four low-income individuals would require transfers to reduce the range to within 150,000. The average would stay the same (75,000 pesos), but the income differences would all be cut in half, so that the new distribution would be: 39,000; 45,000; 48,000; 54,000; and 189,000 (all in pesos).

Before you are permitted to join with the other members of the group to choose a principle of justice, you are required to answer some questions to determine if you have understood the concepts which are being used in the experiment. You will be paid 25 centavos for every numbered question answered correctly. You may refer to any part of the booklet in deciding on your answers. When you finish answering the questions, bring your answers to the moderator. If you make mistakes, you will be given chances to take another test and show that you have understood the concepts which are being used in the

experiment. But in the second test you will be paid only ten centavos per right answer, and you will only be asked to answer questions about material you did not master at first.

The following information may help you to answer the following questions:

A. The range is the difference between the highest and lowest personal income levels in a distribution of personal income levels.
B. The floor is the lowest personal income level in a distribution of personal income levels.
C. If one choses to maximise the average 'with a floor constraint' of 30,000 pesos, this means: one selects that income distribution with the highest average subject to the constraint that everyone gets at least 30,000 pesos.
D. If one choses to maximise the average 'with a range constraint' of 20,000 pesos, this means: one selects the income distribution with the highest average subject to the constraint that the difference between the highest and lowest personal income level is no more than 20,000 pesos.

DO NOT GO TO THE NEXT SECTION UNTIL AFTER YOU PASS THE TEST.

TEST

	Income distributions			
Income Class	1	2	3	4
High	90,000	57,000	78,000	87,000
Medium high	75,000	54,000	60,000	66,000
Medium	60,000	48,000	54,000	54,000
Medium Low	45,000	42,000	45,000	42,000
Low	30,000	39,000	33,000	36,000
Average Income	60,000	48,000	54,000	57,000
Floor Income	_____	_____	_____	_____
Range	_____	_____	_____	_____

1. In the blank space in the distributions above write in the floor (or low) income for each distribution.

2. In the blank spaces in the distributions above write in the range for each distribution.

3. Indicate which distribution would be selected as a result of the application of each of the following principles.
   A. Maximisation of the floor income would select distribution _____.
   B. Maximisation of the average income would select distribution _____.
   C. Maximisation of the average income with a floor constraint of 34,500 pesos would select distribution _____.
   D. Maximisation of the average income with a range constraint of 48,000 pesos would select distribution _____.

4. If I were to choose to maximise the floor income, the lowest income I could get would be _____, the highest would be _____.

5. If I were to choose to maximise the average income, the lowest income I could get would be _____; the highest would be _____.

6. Please answer the following question, true or false: After choosing a principle of justice, my payoff will be determined by the probability of being in each income class and the luck of the draw. Circle one: true or false.

Please bring the handbook to the moderator for your test answers to be corrected.

Now that you have some acquaintance with the principles of justice and before you begin to work toward a choice in the group, please indicate your preferences for the principles. Rank them from most preferred to least preferred by placing in the blank spaces below the letters (a), (b), (c), and (d), corresponding to the principles. Indicate ties by placing the tied principles in the same blanks.

most preferred _____ _____ _____ _____ least preferred

a. maximise the floor income
b. maximise the average income
c. maximise the average income, subject to a floor constraint
d. maximise the average income, subject to a range constraint

How do you feel about your ranking of these principles? (Circle the appropriate answer).

1. very unsure
2. unsure
3. no opinion
4. sure
5. very sure

PART II

In this part of the experiment participants are formed into groups of five individuals. Members of each group are to have a full and open discussion to determine which principle of justice is to be adopted and applied by the group. Members of the group must come to a unanimous agreement concerning which principle of justice is to be adopted. If unanimous agreement is not reached then the moderator will select, at random, any one of a range of distributions of personal incomes and randomly assign, to each member of the group, an income level out of this income distribution.

Assuming the group has decided upon a principle of justice, this principle is then employed to determine which distribution, out of a range of distributions, of income to adopt. (Each distribution specifies five payoff amounts.) Next each member of the group will be randomly assigned an income from the income distribution decided upon. This will determine your payoff in the third part of the experiment.

You must follow the procedures below for the discussion and voting phase.

Discussion Phase

You begin by having a group discussion about which principle you should adopt. The group can terminate this discussion anytime after five minutes. If after five minutes you feel nothing more can be gained by further discussion, you are to tell this to the moderator.

You *are not restricted,* in any way, *to the four principles of justice* mentioned above. Thus, you can discuss and later adopt other principles. Any one of you can introduce and

begin discussion of any principle. But not just any principle is a principle. There are two requirements which a principle must meet to be considered as a principle of justice.

> First, the principle *cannot use names*. For example, a principle which gives all to one specified person is not permitted because it specifies a named person. However, a principle which gives all the income to some *unspecified* person *is* permitted.
>
> Second, only feasible 'just distributions' should be considered. For example, strict equality is not a principle since it may not be achievable.

Finally, there are a few requirements you should bear in mind if you wish to adopt a principle which involves a constraint. You should think of peso figures as annual family incomes for a household in a democratic society of moderate scarcity.

If you wish to consider a range constraint, you must specify the peso amount.

If you wish to consider a floor constraint, you are not in a position to know what floors will actually be achievable. Of course, there is a maximum achievable floor income in the set of income distributions. You can specify an absolute peso amount which you wish to have as a floor constraint. If that peso amount is higher than 80 per cent of the average income, we will set the floor at 80 percent of the average income. If that peso amount is below 80 per cent of the average income, we will set the floor at that level. This will guarantee the existence of such a distribution. Nevertheless, you will not know what the absolute peso amount of this floor is until after the voting has been completed.

The floor income can be viewed as the minimum income a head of an average household is guaranteed each year.

Choice Phase

After your discussion you, as a group, are to vote to adopt a principle of distributive justice. Your voting will be according to the following procedure. The group will adopt a principle, if and only if, that principle is able to secure the *unanimous* support of the group against *all* other principles sketched above, plus any others which you have discussed. The principles are to be voted upon, two at a time. Only that principle which gets *unanimous* support in two-way contests against all other principles is actually adopted by the group. If no such proposal exists, then the group will have adopted no principle. In that case, any member of the group can ask for extra discussion, which can be terminated at any time using the procedure described above. A new vote would follow.

Your payoffs in Part III of the experiment will conform to the principle which you, as a group, adopt. TO REPEAT, REMEMBER THAT IF YOU, AS A GROUP DO NOT ADOPT ANY PRINCIPLE, THEN THE MODERATOR WILL SELECT A PRINCIPLE AT RANDOM WHICH WILL BE APPLIED TO YOUR EARNINGS IN THE THIRD PART OF THE EXPERIMENT. That choice of income distribution will conform to no particular characteristics.

PART III

In this part of the experiment you will be required to correct the spelling errors in three texts to earn some money. The texts will be provided by the moderator one at a time. Please read the instructions in the spelling documents very carefully. You will have four minutes for the first selection and three minutes each for the succeeding two selections. After completing each task, or time runs out, bring your paper to the moderator for scoring. The moderator, in turn, will ask you to answer an end-of-production-period document after each round of work.

You will be paid 25 centavos for each of the first four errors found; 50 centavos for each of the next four errors found; and one peso for each subsequent error found. Your actual earnings at each job will be translated into an annual income by calculating how much you will earn in a year, given your rate of earnings in each production period. Your earned annual income may be taxed or subsidised in accordance with the principle adopted by the group in Part II of the experiment. To reiterate in case there was no group agreement, the final distribution of income will be based on the principle selected by random by the moderator. Are there any questions? If so, please ask them now, or at any time during this part of the experiment. DO NOT GO TO PART IV UNTIL AFTER YOU FINISH ANSWERING YOUR THIRD END-OF-PRODUCTION-PERIOD DOCUMENT.

PART IV BACKGROUND DATA ON THE RESPONDENT

Please answer questions #1 to #11 by choosing from a five-point scale: (1) disagree strongly; (2) disagree somewhat; (3) neither agree nor disagree; (4) agree somewhat; and (5) agree strongly.

_____1. Relative equality of wealth is a good thing.
_____2. Government ought to have programs which give money to people like me when unavoidable events interrupt our ability to support ourselves.
_____3. A proper role of government is to modify the distribution of earned income.
_____4. Governments should ensure that all poor people can afford a relatively decent standard of living.
_____5. My expected monetary reward from this experiment was sufficient to affect my choices.
_____6. My reason for agreeing to participate in this experiment was to earn money.
_____7. My reason for agreeing to participate in this experiment was my interest in the project.
_____8. The greatest accomplishments in history were individual efforts.
_____9. In every country there are groups of people who are naturally inferior.
_____10. An individual's lifetime income is in part a result of many genetic and social accidents. The luckiest get the greatest talents and the highest rewards such as status and wealth. The least fortunate get the lowest abilities and opportunities, and receive the associated costs of poverty.
_____11. Life would hardly be worth living in a society in which I couldn't give someone else pleasure by my actions.

For question no. 12, express your answers as percentages on a 0-100 scale for each of the responses.

12. What percentage of your college expenses are met by each of the following:

(a) parent's help;	_____%
(b) income you earn;	_____%
(c) trust monies;	_____%
(d) scholarships;	_____%
(e) loans;	_____%
(f) spouse's help; or	_____%
(g) others (specify) _____.	_____%
TOTAL	100%

13. What minimum annual income (in thousands of today's pesos) do you think you will find satisfactory as your starting salary for your first job after graduation? _____

14. What minimum annual income (in thousands of today's pesos) do you think you will find satisfactory at age thirty-five? _____

15. What minimum annual income (in thousands of today's pesos) do you think you will find satisfactory at age fifty? _____

16. Rate your ideological preference on a scale from 1 (most conservative) to 5 (most liberal). _____

a.	most conservative	1
b.	conservative	2
c.	somewhere in the middle of being conservative and liberal	3
d.	liberal	4
e.	most liberal	5

17. Suppose someone offered to sell you a lottery ticket. In this lottery, one out of every four tickets will win 1,500 pesos. What is the most you would be willing to pay for it? _____

18. Suppose you have a lottery ticket. In this lottery, one out of three tickets will win 1,500 pesos. If someone asked you to sell them the ticket, what is the minimum price you would sell it for? _____

19. For how many years of your life was your father employed before you were seven? (If you are not sure, estimate.)_____

20. For how many years of your life was your mother employed before you were seven? (If you are not sure, estimate.)_____

21. Attitude to ideologies. Generally, you usually think of yourself as: _____

a. With conservative ideas
b. With a moderately reformist attitude
c. Independent
d. No preference

22. With regard to each ideological preference, you feel: (a) complete opposition; (b) somewhat in opposition; (c) somewhere in the middle of opposition and support; (d) somewhat liberal; and (e) complete support. Indicate the letter in the spaces provided for below:

a. With conservative ideas ___
b. With a moderately reformist attitude ___
c. Independent ____

23. For some people to succeed, others must fail. Answer yes or no _____.

24. Describe your future career plans and aspirations. Answer yes or no in the spaces provided for.

a. Public Service?	_____
b. Politics?	_____
c. Private Business?	_____
d. Private professional?	_____

PLEASE RETURN THE HANDBOOK TO THE MODERATOR. THANK YOU.

Reference: Frohlich, N. and Oppenheimer, J. 1992. *Choosing Justice: an experimental approach in ethical theory,* University of California Press, Berkeley.

Annex 5
(Chapter 3)

This Annex describes the variables used in the regression models with their sources of data placed in parenthesis.

$POVI_j$	=	Poverty incidence in 1991 by province (PCFP 1995)
$logRAFI_j$	=	log Real Average Family Income per province in 1991 (NSO 1994b)
$logRPCI_j$	=	log Real Per Capita Income per province in 1991 (NSO 1994b)
ELEC	=	proportion of households with electricity in 1990 per province (NSO 1993)
POT	=	proportion of households with potable water in 1990 per province (NSO 1993)
SAN	=	proportion of households with sanitary toilet facilities in 1990 per province (NSO 1993)
NAGL	=	proportion of the labour force in the non- agricultural sector in 1990 per province (NSO 1993)
DEPR	=	the average dependency burden ratio in 1990 per province; the number of household members less than or equal to 14 year old plus those above 65 years old divided by the number of persons in the household (NSO 1993)
HSIZ	=	average household size in 1990 per province (NSO 1993)
URB	=	proportion of households living in an urbanised area in 1990 per province (NSO 1993)
LANFO	=	proportion of total area of farms in the province in 1991 which is fully-owned (NSO 1994a)
IRRIG	=	proportion of arable land in the province in 1991 which is irrigated (NSO 1994a)
DIST	=	dummy variable for distance. The variable takes a value of 0 if the province is located in Luzon (except for Mindoro and Palawan which takes a value of 1 because of its relatively longer distance from MetroManila as compared to the other provinces within the Luzon island); 1 if in the Visayas; and 2 if in Mindanao.
FLIT	=	functional literacy rate in 1989 per province (DECS and NSO 1989)
ILLIT	=	illiteracy rate in 1990 per province (PCFP 1995)
ACADEG	=	proportion of persons 25 years old and over with academic degree (NSO 1993)
ROADEN	=	road density per province (DPWH 1991)
PAVRODEN	=	paved road density per province (DPWH 1991)
D	=	regional delineation from 1 to 13 (NSO 1993)

Annex 6
(Chapter 3)

Table 2. Correlation Matrix

	POVI	LogRAFI	logRPCI	ELEC	POT	SAN	NAGL	DEPR	HSIZ	URB
POVI	1.000									
LogRAFI	-0.754	1.000								
logRPCI	-0.725	0.954	1.000							
ELEC	-0.447	0.670	0.647	1.000						
POT	-0.352	-0.458	0.457	0.684	1.000					
SAN	-0.322	0.495	0.523	0.740	0.663	1.000				
NAGL	-0.363	0.488	0.539	0.672	0.514	0.482	1.000			
DEPR	0.449	-0.531	-0.480	-0.655	-0.381	-0.421	-0.290	1.000		
HSIZ	0.182	-0.196	-0.265	-0.095	-0.297	-0.188	-0.051	0.167	1.000	
URB	-0.470	0.594	0.578	0.694	0.563	0.503	0.646	-0.508	-0.086	1.000
LANFO	-0.032	-0.105	-0.171	-0.408	-0.436	-0.574	-0.405	-0.062	0.176	-0.102
IRRIG	-0.387	0.437	0.380	0.312	0.091	0.110	0.071	-0.250	0.062	0.108
DIST	0.390	-0.454	-0.471	-0.502	-0.442	-0.334	-0.368	0.205	0.404	-0.156
FLIT	-0.230	0.430	0.432	0.640	0.647	0.630	0.474	-0.258	-0.249	0.509
ILLIT	0.224	-0.376	-0.442	-0.586	-0.591	-0.659	-0.592	0.072	0.180	-0.461
ACADEG	-0.448	0.484	0.486	0.764	0.631	0.574	0.661	-0.527	-0.049	0.561
PAVRODEN	-0.345	0.341	0.344	0.525	0.640	0.499	0.529-	-0.346	-0.223	0.388
ROADEN	0.201	-0.137	-0.151	0.113	0.174	0.210	-0.036	-0.127	0.025	-0.155
D	0.248	-0.451	-0.520	-0.431	-0.257	-0.461	-0.509	0.195	0.323	-0.201

Continuation of Table 2. **Correlation Matrix**

	LANFO	IRRIG	DIST	FLIT	ILLIT	ACADEG	PAVRODEN	ROADEN	D
LANFO	1.000								
IRRIG	-0.014	1.000							
DIST	0.393	-0.401	1.000						
FLIT	-0.468	0.062	-0.414	1.000					
ILLIT	0.697	-0.049	0.429	-0.730	1.000				
ACADEG	-0.249	0.159	-0.357	0.572	-0.524	1.000			
PAVRODEN	-0.451	0.148	-0.388	0.432	-0.450	0.509	1.000		
ROADEN	-0.189	0.062	0.040	0.170	-0.076	0.275	0.249	1.000	
D	0.507	-0.276	0.640	-0.311	0.479	-0.175	-0.316	0.071	1.000

Annex 7
(Chapter 4)

SURVEY OF RURAL HOUSEHOLDS[1]

This survey is part of a study of rural households in the Philippines. It aims to get a general idea of the socio-economic background of possible participants in group discussions which will be conducted in two Philippine villages sometime in 1997. The groups will consist of members of households which are to be selected by systematic random sampling. The groupings for the discussions are as follows: fathers; mothers; eldest sons (never married); eldest daughters (never married); younger children (less than 15 years old), and grandparents. The groups will be asked their views on issues relating to their general well-being, fertility decisions, and caring for the environment (particularly the forests).

This questionnaire will be administered by an interviewer prior to the group discussions. It is divided into three parts:

(i) Part I contains basic questions on the members of the household, the existence of household amenities and access to service facilities/centres. The questions should be answered by the head of the household or any senior household member.

(ii) Part II contains questions on household income. Except for coping strategies which should be answered by the head of the household, all items in Part II should be answered by the head of the household or any member of the household who is responsible in the management of the household finances.

(iii) Part III refers to matters relating to woman's work, reproduction, and access to and use of health and family planning facilities and services in the community. It also includes some questions on the health of the children. These questions should be answered by the wife of the head of the household or the head of the household if she is female.

The case study itself will not mention names and all information gathered in this survey is strictly confidential.

Province: _____
Municipality: _____
Barangay: _____
Household #: _____
Address: _____

Interviewer Visits:

	1	2	3	Final Visit
Date				
Interviewer's initials				
Result*				

* Result Codes:
1 Completed
2 No household member at home or no competent respondent at home at time of visit
3 Postponed; Interviewer was asked to return later
4 Other _____(specify)

References: National Statistics Office, 1994a. *1991 Family Income and Expenditures Survey*, NSO, Manila and National Statistics Office, 1994b. *National Demographic Survey 1993*, NSO and Macro International Inc., Calverton, Maryland.

1 Most of the questions were patterned after those contained in the 1993 Philippine National Demographic Survey and the 1991 Philippine Family Income and Expenditures Survey with some modifications as necessary.

PART I. BASIC INFORMATION ON HOUSEHOLD MEMBERS, HOUSEHOLD AMENITIES, AND ACCESS TO SERVICE FACILITIES/CENTRES

Time of Interview Started: _____ Time of Interview Ended:_____

I (WE) WOULD LIKE TO REQUEST SOME INFORMATION ABOUT THE PEOPLE WHO USUALLY LIVE IN YOUR HOUSEHOLD OR WHO ARE STAYING WITH YOU NOW.

LINE. NO.	USUAL RESIDENTS: (Please give me the names of the persons who usually live in your household starting with the head of the household?	RELATIONSHIP TO HEAD OF HH: What is the relationship of (NAME) to the head of the household? Enter relationship code.[a]	FAMILY TYPE: Enter family type.[b]	SEX: Is (NAME) male or female?	AGE: How old is (NAME) as of her/ his last? birthday	EDUCATION: Has (NAME) ever been to school? If yes, what is the highest grade/year (NAME) completed? Enter codes for grade/ year[c].	BASIC LITERACY: Does (NAME) know how to read, write, and count?
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1		REL.	TYPE	M 1 F 2	IN YRS.	CODE	YES 1 NO 2
2		REL.	TYPE	M 1 F 2	IN YRS.	CODE	YES 1 NO 2
3		REL.	TYPE	M 1 F 2	IN YRS.	CODE	YES 1 NO 2
4		REL.	TYPE	M 1 F 2	IN YRS.	CODE	YES 1 NO 2
5		REL.	TYPE	M 1 F 2	IN YRS.	CODE	YES 1 NO 2
6		REL.	TYPE	M 1 F 2	IN YRS.	CODE	YES 1 NO 2
7		REL.	TYPE	M 1 F 2	IN YRS.	CODE	YES 1 NO 2
8		REL.	TYPE	M 1 F 2	IN YRS.	CODE	YES 1 NO 2
9		REL.	TYPE	M 1 F 2	IN YRS.	CODE	YES 1 NO 2

			REL.	TYPE	M	F	IN YRS.	CODE	YES	NO
10					1	2			1	2
11					1	2			1	2
12					1	2			1	2
13					1	2			1	2
14					1	2			1	2
15					1	2			1	2

Just to make sure that I (we) have a complete listing, I (we) have listed _____ people.

(8) Are there any other persons such as small children or infants that I (we) have not listed?
Encircle: Yes or No.

If yes, enter each name in the above table. If no, go to question no. 9.

[a] RELATIONSHIP TO HEAD OF HOUSEHOLD CODES:

01 = HEAD
02 = WIFE OR HUSBAND
03 = SON OR DAUGHTER
04 = SON OR DAUGHTER-IN-LAW
05 = GRANDCHILD
06 = PARENT
07 = PARENT -IN-LAW
08 = BROTHER/SISTER OR BROTHER/SISTER-IN-LAW
09 = UNCLE/AUNT OR UNCLE/ AUNT-IN-LAW
10= COUSIN/ COUSIN-IN-LAW
11 = NIECE/NEPHEW OR NIECE/ NEPHEW-IN-LAW
12=GRANDPARENT OR GRANDPARENT-IN-LAW
13=ADOPTED/ FOSTER CHILD
14 = NOT RELATED
15 = DON'T KNOW

[b] FAMILY TYPE CODES:

0 = NO FAMILY NUCLEUS
1= FIRST FAMILY
2 = SECOND FAMILY
3 = THIRD FAMILY AND SO FORTH

[c] CODES FOR GRADE/YEAR:

00 = NO EDUCATION
11 = ELEMENTARY GRADE 1
12 =ELEMENTARY GRADE 2
13 = ELEMENTARY GRADE 3
14 = ELEMENTARY GRADE 4
15 = ELEMENTARY GRADE 5
16 = ELEMENTARY GRADE 6
17 = ELEMENTARY GRADE 7
21 = HIGH SCHOOL YEAR 1
22 = HIGH SCHOOL YEAR 2
23 = HIGH SCHOOL YEAR 3
24 = HIGH SCHOOL YEAR 4
31 = COLLEGE YR. 1
32 = COLLEGE YR. 2
33 = COLLEGE YR. 3
34 = COLLEGE YR. 4
35 = COLLEGE YR. 5
40 = COLLEGE GRADUATE

(9) Do you have any living children in the household who are between the ages of three months and 60 months? If 'yes', REQUEST PERMISSION OF PARENTS IN THE HOUSEHOLD TO MEASURE THE HEIGHT OF THE CHILDREN AND RECORD THE INFORMATION IN THE TABLE BELOW. If 'no', skip to question no. 10.

LINE NO.	NAME	AGE (in mos.)	HEIGHT (in centimetres)
(1)			
(2)			

(3) _____

(4) _____

QUESTION	CODING CATEGORIES	SKIP TO
(10) How do you classify your family? Are you a Tagalog, Bicolano, Ilocano, Cebuano, Ilonggo, Waray, Kapampangan, or what?	01= Tagalog 02 = Bicolano 03 = Ilocano 04 = Ibaloi 05 = Kankaney 06 = Cebuano 07 = Ilonggo 08 = Waray 09 = Kapampangan 10 = Other _____ (SPECIFY).	

(11) How long has the head of the household been a resident of this province? No. of years: _____

NOW I (WE) WOULD LIKE SOME INFORMATION ON HOUSEHOLD AMENITIES.

QUESTION	CODING CATEGORIES	SKIP TO
(12) What is the main source of water your household uses for handwashing and dishwashing?	COMMUNITY WATER SYSTEM PIPED INTO 11 = RESIDENCE/YARD PLOT 12 = PUBLIC TAP TUBED/PIPED WELL/IMPROVED DUG WELL PRIVATE WELL W/O FAUCET 21 = Within residence/yard/plot 22 = Not within residence/yard/plot 23 = PRIVATE WELL W/ FAUCET 24 = PUBLIC WELL 31 = OPEN/DUG WELL 41 = DEVELOPED SPRING 51 = RAIN WATER 71 = OTHER _____ (SPECIFY)	14 14 14 14
(13) How long does it take to go there, get water, and come back?	MINUTES _____ 996 = PREMISES	
(14) Does your household get drinking water from this same source?	1 = YES 2 = NO	16
(15) What is the main source of drinking water for members of your household?	COMMUNITY WATER SYSTEM PIPED INTO 11 = RESIDENCE/YARD PLOT 12 = PUBLIC TAP TUBED/PIPED WELL/IMPROVED DUG WELL PRIVATE WELL W/O FAUCET 21 = Within residence/yard/plot 22 = Not within residence/yard/plot 23 = PRIVATE WELL W/ FAUCET 24 = PUBLIC WELL 31 = OPEN/DUG WELL 41 = DEVELOPED SPRING 51 = RAIN WATER 71 = OTHER _____ (SPECIFY)	

(16) What kind of toilet facility does your household have?

FLUSH TOILET (WATER SEALED)
11 = OWN FLUSH TOILET
12 = SHARED FLUSH TOILET
PIT TOILET/LATRINE
21 = TRADITIONAL PIT TOILET
22 = VENTILATED IMPROVED PIT LATRINE
31 = NO FACILITY/BUSH/FIELD
41 = OTHER _____
(SPECIFY)

(17) Does your household have:

		YES	NO
electricity for home consumption?	ELECTRICITY FOR HOME CONSUMPTION	1	2
electricity for home production? (e.g. dressmaking, carpentry)	ELECTRICITY FOR HOME PRODUCTION	1	2
an electric/gas range?	ELECTRIC/GAS RANGE	1	2
a refrigerator?	REFRIGERATOR	1	2
a television?	TELEVISION	1	2
a radio?	RADIO	1	2

(18) What is the main source of energy for cooking?

01 = ELECTRICITY
02 = WOOD from backyard
03 = WOOD from forests
04 = CHARCOAL
05 = Other _____
(SPECIFY)

(19) How far is the forest from your house in kilometres?

_____(kilometres)

(20) How many rooms in your household are used for sleeping?

ROOMS _____

(21) Main Material of the Floor. (RECORD OBSERVATION)

NATURAL FLOOR
11 = EARTH/SAND
RUDIMENTARY FLOOR
21 = WOOD PLANKS
22 = PALM BAMBOO
FINISHED FLOOR
31 = PARQUET OR POLISHED WOOD
32 = VINYL OR ASPHALT STRIPS
33 = CERAMIC TILES
34 = CEMENT
35 = MARBLE
41 = OTHER _____
(Specify)

(22) Does any member of your household own:

		YES	NO
a bicycle?	BICYCLE	1	2
a motorcycle	MOTORCYCLE	1	2
a car?	CAR	1	2

NEXT, I (WE) WOULD LIKE TO ASK YOU ABOUT THE NEAREST AVAILABLE SCHOOLS AND SERVICE FACILITIES/CENTRES TO YOUR HOUSEHOLD.

SERVICE FACILITY/CENTER	: DISTANCE TO SERVICE FACILITY/ CENTER (IN KMS.) [a]	MOST COMMON TYPE OF TRANSPORT[b]	TRAVEL TIME TO GET THERE[c]
A. EDUCATION			
1. Elementary	_____	_____	Hour: _____ Mins. _____
2. High School	_____	_____	Hour: _____ Mins. _____
3. College/University	_____	_____	Hour: _____ Mins. _____
B. GENERAL SERVICES			
1. Barangay Hall	_____	_____	Hour: _____ Mins. _____
2. Postal Service	_____	_____	Hour: _____ Mins. _____
3. Church/chapel/ mosque with a service at least once a month	_____	_____	Hour: _____ Mins. _____
4. Market Place where trading activities are carried on at least once a week.	_____	_____	Hour: _____ Mins. _____
5. Public library	_____	_____	Hour: _____ Mins. _____
6. Cinema	_____	_____	Hour: _____ Mins. _____
7. Public transportation	_____	_____	Hour: _____ Mins. _____

[a] DISTANCE CODES: 00 = less than 1 kilometre/ located within barangay
01 = More than 1 kilometre (Indicate approximate distance)_____
98 = Not known facility

[b] TRANSPORT CODES: 01 = Walking
02 = Private Vehicle/Cart
03 = Hired Vehicle/Cart
04 = Public Transport
05 = Other _____ (SPECIFY)

[c] RECORD IN MINUTES IF LESS THAN 2 HOURS AND IN HOURS IF 2 HOURS OR MORE.

****

PART II. HOUSEHOLD INCOME and OTHER RECEIPTS

Time of Interview Started: _____ Time of Interview Ended:_____

I (WE) WOULD LIKE TO ASK SOME QUESTIONS ABOUT THE SOURCES OF YOUR HOUSEHOLD INCOME IN 1996 AND ON OTHER MATTERS RELATING TO INCOME AND EMPLOYMENT OPPORTUNITIES.

A. SALARIES AND WAGES FROM EMPLOYMENT

A1. SALARIES AND WAGES FROM REGULAR EMPLOYMENT

QUESTION	CODING CATEGORIES	SKIP TO
A1.1 AGRICULTURAL		

During the period January to December 1996, did you or any member of your family receive regularly salaries and wages from employment in agricultural sectors, in cash (including allowances, honoraria, tips, bonus, commissions, and others) and in kind (including housing, food, grocery, clothing, medical benefits, etc.)?

01 = YES
02 = NO

A1.2

LINE NO.	FIRST NAME of FAMILY MEMBER	SPECIFIC TYPE OF WORK[a]	CASH EARNINGS (in pesos)	EARNINGS IN KIND (in pesos)
(1)	(2)	(3)	(4)	(5)
1				
2				
3				
4				
5				
6				
7				
TOTAL		91010		

[a] TYPE OF WORK

91011: CROP FARMING AND GARDENING (such as the growing of palay, corn, roots, and tubers, vegetables, fruits, nuts, orchids, ornamental plants, etc.)

91012: LIVESTOCK AND POULTRY RAISING (such as raising of carabaos, cattle, hogs, horses, chicken, ducks, etc. and the production of fresh milk, eggs, etc.)

91013: FISHING (such as capture fishing with a boat of three tons or less; gathering fry, shells, seaweeds, etc. and culturing fish, oyster, mussel, etc.)

91014: FORESTRY AND HUNTING (such as tree planting (ipil-ipil), firewood gathering, small-scale logging (excluding concessionaires), charcoal making, gathering forestry products (cogon, nipa, rattan, bamboo, resin, gum, etc.) or hunting wild animals/birds).

A1.2 NON-AGRICULTURAL

During the period January to December 1996, did you or any member of your family receive regularly salaries and wages from employment in non-agricultural sectors, in cash (including allowances, honoraria, tips, bonus, commissions, and others) and in kind (including housing, food, grocery, clothing, medical benefits, etc.)?

01 = YES
02 = NO

A2.1

LINE NO.	FIRST NAME of FAMILY MEMBER	SPECIFIC TYPE OF WORK[a]	CASH EARNINGS (in pesos)	EARNINGS IN KIND (in pesos)
(1)	(2)	(3)	(4)	(5)
1				
2				
3				
4				
5				
6				
7				
TOTAL		91020	==========	==========

[a]CODES FOR TYPE OF WORK:

91021 = WHOLESALE AND RETAIL including market vending, sidewalk vending, and peddling

91022 = MANUFACTURING such as working in the factories, mat weaving, tailoring, dressmaking, bagoong making, fish drying, etc.

91023 = COMMUNITY, SOCIAL, RECREATIONAL, AND PERSONAL SERVICES such as medical and dental practice, practice of trade, operation of schools, restaurants and hotels, etc.

91024 = TRANSPORTATION, STORAGE, AND COMMUNICATION SERVICES such as operation of jeepneys or taxis, storage and warehousing activities, messenger services, etc.

91025 = MINING AND QUARRYING such as mineral extraction like salt making, gold mining; gravel, sand and stone quarrying, etc.

91026 = CONSTRUCTION or repair of a house, building or any structure

91027 = ACTIVITIES NOT ELSEWHERE CLASSIFIED including utilities (such as electricity, gas and water), financing, insurance, real estate, and business services.

A2. SALARIES AND WAGES FROM SEASONAL/OCCASIONAL EMPLOYMENT

QUESTION	CODING CATEGORIES	SKIP TO
A2.1 AGRICULTURAL		
During the period January to December 1996, did you or any member of your family receive salaries and wages from agricultural sectors, as seasonal/ occasional workers (for example, harvester) in cash (including allowances, honoraria, tips, bonus, commissions, and others) and in kind (including housing, food, grocery, clothing, medical benefits, etc.)	01 = YES 02 = NO	 A2.2

LINE NO.	FIRST NAME of FAMILY MEMBER	SPECIFIC TYPE OF WORK[a]	CASH EARNINGS (in pesos)	EARNINGS IN KIND (in pesos)
(1)	(2)	(3)	(4)	(5)
1				
2				
3				
4				
5				
6				
7				
	TOTAL	91030	==========	==========

[a] CODES FOR TYPE OF WORK: 91011 = CROP FARMING AND GARDENING
91012 = LIVESTOCK AND POULTRY RAISING
91013 = FISHING
91014 = FORESTRY AND HUNTING
(See A1.1 for examples.)

QUESTION	CODING CATEGORIES	SKIP TO
A2.2 **NON-AGRICULTURAL**		
During the period January to December 1996, did you or any member of your family receive salaries and wages from non-agricultural sectors, as seasonal/ occasional workers (e.g. salesmen, hostesses on commission, tip or piece-rate basis), in cash (including allowances, honoraria, tips, bonus, commissions and others) and in kind (including housing, food, grocery, clothing, medical benefits, etc.)?	01 = YES 02 = NO	

LINE NO.	FIRST NAME of FAMILY MEMBER	SPECIFIC TYPE OF WORK[a]	CASH EARNINGS (in pesos)	EARNINGS IN KIND (in pesos)
(1)	(2)	(3)	(4)	(5)
1				

2			
3			
4			
5			
6			
7			
TOTAL	91040	==========	==========

[a]CODES FOR TYPE OF WORK:
91021 = WHOLESALE AND RETAIL
91022 = MANUFACTURING
91023 = COMMUNITY, SOCIAL, RECREATIONAL, AND PERSONAL SERVICES
91024 = TRANSPORTATION, STORAGE, AND COMMUNICATION SERVICES
91025 = MINING AND QUARRYING
91026 = CONSTRUCTION
91027 = ACTIVITIES NOT ELSEWHERE CLASSIFIED
(See A1.2 for examples.)

A3. RELATIONSHIP BETWEEN EXISTING INFRASTRUCTURE FACILITIES AND EMPLOYMENT OPPORTUNITIES IN THE AREA.

QUESTION	CODING CATEGORIES OR RESPONSE		SKIP TO
A3.1. Are the following infrastructure facilities existing in your area?	YES	NO	IF 'NO', TO Question No. A3.3.
a. Farm-to-Market Roads	1	2	
b. Irrigation (all types)	1	2	
c. Post-harvest Facilities	1	2	
d. Other _____ (Specify)	1	2	
A3.2. Do you have access to these facilities?	YES	NO	
a. Farm-to-Market Roads	1	2	
b. Irrigation (all types)	1	2	
c. Post-harvest Facilities	1	2	
d. Other _____ (Specify)			

A3.3. How does the presence of (or lack of) infrastructure facilities influence employment opportunities open to you? (Mention also electricity, water supply and sanitary toilet facilities and cross-refer with respondent's answers in Part I on household amenities.)

B. NET SHARE OF CROPS, FRUITS AND VEGETABLES PRODUCED OR LIVESTOCK AND POULTRY RAISED BY OTHER HOUSEHOLDS

QUESTION	CODING CATEGORIES	SKIP TO
During the period January to December 1996, did you or any member of your family receive net share of crops, fruits and vegetables produced or livestock and poultry raised by other households? If yes, how much was sold or consumed by the family?	01= YES 02 = NO	C

ITEM (1)	CODE (2)	TOTAL NET VALUE OF SHARE (3)	SOLD FOR CASH (4)	VALUE CONSUMED (5)
1. Cereals (Palay, corn, other cereals)	92010			
2. Roots and tubers	92020			
3. Fruits and vegetables	92030			
4. Livestock and poultry	92040			
5. Livestock and poultry products	92050			
6. Others (specify)_____	92060			
TOTAL	92000			

C. OTHER SOURCES OF INCOME

C1. CASH RECEIPTS, GIFTS, SUPPORT, RELIEF, AND OTHER FORMS OF ASSISTANCE FROM ABROAD

QUESTION	CODING CATEGORIES	SKIP TO
During the period January to December 1996, did you or any member of your family receive in cash, any receipt, gift or other assistance from abroad?	01= YES 02 = NO	C2

ITEM (1)	CODE (2)	IN CASH (3)
1. Cash received from family members who are contract workers	93011	
2. Cash received from family members who are working abroad	93012	
3. Pensions, retirement, workmen's compensation and other benefits	93013	

4. Cash gifts, support, relief, etc. from abroad	93014	_____
5. Dividends from investment abroad	93015	_____
TOTAL	93010	==========

C2. CASH RECEIPTS, SUPPORT, ASSISTANCE AND RELIEF FROM DOMESTIC SOURCE

QUESTION	CODING CATEGORIES	SKIP TO
During the period January to December 1996, did you or any member of your family receive in cash any gift, support, assistance or relief from a domestic source?	01= YES 02 = NO	 C3

SOURCE (1)	CODE (2)	IN CASH (3)
1. Other families	93021	_____
2. Government and private institutions	93022	_____
TOTAL	93020	==========

C3. RENTALS RECEIVED FROM NON-AGRICULTURAL LANDS, BUILDINGS, SPACES, AND OTHER PROPERTIES

QUESTION	CODING CATEGORIES	SKIP TO
During the period January to December 1996, did you or any member of your family receive in cash or in kind, rentals from non-agricultural land, buildings, spaces, or other properties?	01= YES 02 = NO	 C4

ITEM (1)	CODE (2)	IN CASH (3)	IN KIND (4)
1. Land	93031	_____	_____
2. Buildings	93032	_____	_____
3. Spaces	93033	_____	_____
4. Other properties	93034	_____	_____
TOTAL	93030	==========	==========

C4. INTEREST

QUESTION	CODING CATEGORIES	SKIP TO
During the period January to December 1996, did you or any member of your family receive in cash or in kind, interest from bank deposits and loans extended to other families?	01= YES 02 = NO	 C5

ITEM (1)	CODE (2)	IN CASH (3)	IN KIND (4)
1. Interest from Bank deposits	93041	_____	XXXXXXXX
2. Interest from loans extended to other families	93042	----------	----------
TOTAL	93040	==========	==========

C5. PENSION AND RETIREMENT, WORKMEN'S COMPENSATION AND SOCIAL SECURITY BENEFITS

QUESTION	CODING CATEGORIES	SKIP TO
During the period January to December 1996, did you or any member of your family receive in cash or in kind, pensions and retirement, worker's compensation, or social security benefits?	01= YES 02 = NO	C6

ITEM (1)	CODE (2)	IN CASH (3)	IN KIND (4)
1. Pension and retirement	93051	_____	_____
2. Workmen's compensation	93052	_____	_____
3. Social security benefits	93053	_____	_____
TOTAL	93050	==========	==========

C6. NET WINNINGS FROM GAMBLING, SWEEPSTAKES, AND COMMUNITY RAFFLE

QUESTION	CODING CATEGORIES	SKIP TO
During the period January to December 1996, did you or any member of your family receive in cash or in kind, net winnings from gambling, sweepstakes or raffle?	01= YES 02 = NO	C7

ITEM (1)	CODE (2)	IN CASH (3)	IN KIND (4)
1. Gambling (jueteng, cockfights, mahjong, bingo, cards, etc.)	93061	_____	_____
2. Sweepstakes or Lotto	93062	_____	_____
3. Community raffle	93063	_____	_____
TOTAL	93060	==========	==========

C7. OTHER SOURCES OF INCOME NOT ELSEWHERE CLASSIFIED

QUESTION	CODING CATEGORIES	SKIP TO
During the period January to December 1996, did you or any member of your family receive in cash or in kind, other sources of income not elsewhere classified such as investment (stocks, bonds, etc.), any profit from sale of stocks, bonds, and real and personal property, back pay and proceeds from insurance, inheritance, and royalties and income of family members below 10 years old?	01= YES 02 = NO	D

SOURCE (1)	CODE (2)	IN CASH (3)	IN KIND (4)
_____(Specify)	93111	_____	_____
_____(Specify)	93112	_____	_____
TOTAL	93110	=========	=========

D. OTHER RECEIPTS

QUESTION	CODING CATEGORIES	SKIP TO
During the period January to December 1996, did you or any member of your family receive anything, in cash or in kind, other receipts such as sale of real property; sale of personal property (clothing, jewelry, etc.); loans from other families business firms and government institutions for current consumption and investment payment received for loan granted to others (excluding interest); withdrawals from savings/business equity, or other receipts?	01= YES 02 = NO	E

ITEM (1)	CODE (2)	IN CASH (3)	IN KIND (4)
1. Sale of real property	94001	_____	_____
2. Sale of personal property	94002	_____	_____
3. Loans from other families	94003	_____	_____
4. Loans from business firms (including sari-sari stores) and government institutions	94004	_____	_____
5. Payments received for loans granted to others	94005	_____	_____
6. Withdrawals from savings/ business equity	94006	_____	_____
7. Other receipts	94007	_____	_____
TOTAL	94000	=========	=========

E. CHECKLIST FOR FAMILY SUSTENANCE and ENTREPRENEURIAL ACTIVITIES

E1. FAMILY SUSTENANCE ACTIVITIES

QUESTION	CODING CATEGORIES	SKIP TO
During the period January to December 1996, did you or any member of your family produce goods mainly for home consumption?	01= YES 02 = NO	E2

TYPE OF ACTIVITY	CODE	TOTAL VALUE	VALUE CONSUMED	VALUE GIVEN AWAY AS GIFTS
(1)	(2)	(3)	(4)	(5)
1. Fishing, gathering shells, snail, seaweeds, corals, etc.	95010			
2. Logging, gathering forest products like firewood	95050			
3. Hunting and trapping	95060			
4. Farming, gardening	95080			
a) Cereals	95081			
b) Roots and tubers	95082			
c) Fruits and Vegetables	95083			
d) Others _____ (specify)	95084			
5. Raising livestock and poultry	95090			
a) Livestock and poultry	95091			
b) Livestock and poultry products	95092			
TOTAL	95000			

E2. FAMILY ENTREPRENEURIAL ACTIVITIES

QUESTION	CODING CATEGORIES		SKIP TO
During the period January to December 1996, did you or any member of your family engage as operator in any of the following entrepreneurial activities? in (SEE A1.1 and A1.2 for DESCRIPTION).			IF 'YES', go to relevant activity E21 to E31. IF 'NO' TO ALL type of activities, go to F.
	YES	NO	
1. Crop farming and Gardening	1	2	
2. Livestock and Poultry Raising	1	2	
3. Fishing	1	2	
4. Forestry and Hunting	1	2	
5. Wholesale and Retail	1	2	
6. Manufacturing	1	2	
7. Community, Social, Recreational, and Personal Services	1	2	
8. Transportation, Storage and Communication Services	1	2	
9. Mining and Quarrying	1	2	
10. Construction	1	2	
11. Others _____ (SPECIFY)	1	2	

ENTREPRENEURIAL ACTIVITIES

E21. CROP FARMING AND GARDENING

E21.1 Did you or any members of your family harvest crops, fruits, and vegetables during the period specified? If yes, how much was consumed by the family or given away as gifts?

	ITEM	CODE	TOTAL VALUE	VALUE CONSUMED	VALUE GIVEN AWAY AS GIFTS
	(1)	(2)	(3)	(4)	(5)
1.	Cereals	00121			
	a) Palay	92011			
	b) Corn	92012			
2.	Roots and tubers	00122			
	a) Cassava	92022			
	b) Camote	92023			
3.	Fruits and vegetables	00123			
	a) Fruits	92031			
	b) Vegetables	92032			
	c) Coconut	92033			
	d) Others				
4.	Others (including orchids and ornamental plants)	00124			
	a) Tobacco	92003			
	b) Coffee	92071			
	c) Others				
	TOTAL VALUE	00120			

E21.2 During the period specified, did you or any member of your family incur expenses, in cash or in kind, in the production of the crops harvested?

	ITEM	CODE	IN CASH	IN KIND	TOTAL
	(1)	(2)	(3)	(4)	(5)
1.	Seeds	00131			
2.	Fertiliser	00132			
3.	Pesticide	00133			
4.	Fuel and oil	00134			
5.	Wages of hired labour and paid family members	00135			
6.	Interest paid on agricultural loan (if any)	00136			
7.	Irrigation fees and other water charges	00137			
8.	Rent of land, equipment and work animal	00138			

9.	Other expenses	00139	_____	_____	_____
	TOTAL COSTS	00130	========	=======	=========

E21.3 COMPUTATION OF NET INCOME FROM CROP FARMING and GARDENING

	Code	Amount
TOTAL VALUE	00120	_____
LESS: TOTAL COSTS	00130	_____
NET INCOME	00100	========

QUESTION	CODING CATEGORIES OR RESPONSE	SKIP TO
E21.4 If you are a share cropper, do you find any difficulties associated with this system of payment?	_____	
	_____	
E21.5 Where is your main market located?	01 = Town centre 02 = City 07 = Other _____ (SPECIFY)	
E21.6 Who takes your products to the market?	01 = Respondent 02 = Wife 03 = Children 04 = Middleman 07 = Other _____ (SPECIFY)	
E21.7 Who sells them?	01 = Respondent 02 = Wife 03 = Children 04 = Middleman 07 = Other _____ (SPECIFY)	
E21.8 What difficulties do you have in marketing your products?	_____	
	_____	
	_____	

E22. LIVESTOCK AND POULTRY RAISING

E22.1 Did you or any member of your family dispose of any livestock and poultry products, whether sold, consumed or given away or produce livestock/poultry products during the period specified? If 'yes', how much was consumed by the family or given away as gifts?

	ITEM	CODE	TOTAL VALUE	VALUE CONSUMED	VALUE GIVEN AWAY AS GIFTS
	(1)	(2)	(3)	(4)	(5)
1.	Livestock and Poultry	00221	========	=========	=========
	a) Pigs	92041	_____	_____	_____
	b) Cows	92042	_____	_____	_____
	c) Chicken	92043	_____	_____	_____
	d) Carabao	92044	_____	_____	_____
	e) Others	_____	_____	_____	_____

2.	Livestock/poultry products	00222	=========	=========	=========
	a) Milk	92051	_____	_____	_____
	b) Eggs	92052	_____	_____	_____
	c) Others	_____	_____	_____	_____
	TOTAL VALUE	00220	=========	=========	=========

E22.2 During the period specified, did you or any member of your family incur expenses, in cash or in kind, in raising the livestock and poultry disposed of?

	ITEM (1)	CODE (2)	IN CASH (3)	IN KIND (4)	TOTAL (5)
1.	Acquisition cost of stock	00231	_____	_____	_____
2.	Feeds	00232	_____	_____	_____
3.	Medicine	00233	_____	_____	_____
4.	Labor	00234	_____	_____	_____
5.	Fuel and oil	00235	_____	_____	_____
6.	Electricity	00236	_____	_____	_____
7.	Other expenses	00237	_____	_____	_____
	TOTAL COSTS	00230	=========	=========	=========

E22.3 COMPUTATION OF NET INCOME FROM LIVESTOCK AND POULTRY RAISING

	Code	Amount
TOTAL VALUE	00220	_____
LESS: TOTAL COSTS	00230	_____
NET INCOME	00200	=========

QUESTION	CODING CATEGORIES OR RESPONSE	SKIP TO
E22.4 Where is your main market located?	01 = Town centre 02 = City 07 = Other _____ (SPECIFY)	
E22.5 Who takes your products to the market?	01 = Respondent 02 = Wife 03 = Children 04 = Middleman 07 = Other _____ (SPECIFY)	
E22.6 Who sells them?	01 = Respondent 02 = Wife 03 = Children 04 = Middleman 07 = Other _____ (SPECIFY)	

E22.7 What difficulties do you have in marketing your products?

_____

_____

_____

E23. FISHING

E23.1 Did you or any member of your family catch/gather/harvest fish or aquatic products during the period specified? If 'yes', how much was consumed by the family or given away as gifts?

	ITEM	CODE	TOTAL VALUE	VALUE CONSUMED	VALUE GIVEN AWAY AS GIFTS
	(1)	(2)	(3)	(4)	(5)
1.	Fish and other products	00321			
2.	Fry gathered	00322			
3.	Shells and other products gathered	00323			
4.	Fish harvested	00324			
5.	Oyster and mussel harvested	00325			
6.	Other products harvested	00326			
	TOTAL VALUE	00220			

E23.2 During the period specified, did you or any member of your family incur expenses, in cash or in kind, in catching, gathering, or culturing the fish or aquatic products reported above?

	ITEM	CODE	IN CASH	IN KIND	TOTAL
	(1)	(2)	(3)	(4)	(5)
1.	Acquisition cost of fry/fingerlings	00331			
2.	Fertiliser, feeds, and pesticide	00332			
3.	Wages of hired labour and paid family members	00333			
4.	Ice	00334			
5.	Fuel and oil	00335			
6.	Other expenses	00336			
	TOTAL COSTS	00330			

E23.3 COMPUTATION OF NET INCOME FROM FISHING

	Code	Amount
TOTAL VALUE	00320	_____
LESS: TOTAL COSTS	00330	_____
NET INCOME	00300	=========

QUESTION	CODING CATEGORIES OR RESPONSE	SKIP TO
E23.4 Where is your main market located?	01 = Town centre 02 = City 07 = Other _____ (SPECIFY)	
E23.5 Who takes your products to the market?	01 = Respondent 02 = Wife 03 = Children 04 = Middleman 07 = Other _____ (SPECIFY)	
E23.6 Who sells them?	01 = Respondent 02 = Wife 03 = Children 04 = Middleman 07 = Other _____ (SPECIFY)	

E23.7 What difficulties do you have in marketing your products?

_____

_____

_____

E24. FORESTRY AND HUNTING

E24.1 Did you or any member of your family dispose of forestry products gathered or wild animals/birds hunted, whether sold, consumed, or given away during the period specified? If 'yes', how much was consumed by the family or given away as gifts?

	ITEM	CODE	TOTAL VALUE	VALUE CONSUMED	VALUE GIVEN AWAY AS GIFTS
	(1)	(2)	(3)	(4)	(5)
1.	Charcoal	00421	_____	_____	_____
2.	Firewood	00422	_____	_____	_____
3.	Logs	00423	_____	_____	_____
4.	Other forest products	00424	_____	_____	_____
5.	Wild animals/birds	00425	_____	_____	_____
	TOTAL VALUE	00420	=========	=========	=========

E24.2 During the period specified, did you or any member of your family incur expenses, in gathering forest products or hunting wild animals/birds disposed of?

	ITEM (1)	CODE (2)	IN CASH (3)	IN KIND (4)	TOTAL (5)
1.	Wages of hired labour and paid family members	00431	_____	_____	_____
2.	Fuel and oil	00432	_____	_____	_____
3.	Others	00433	_____	_____	_____
	TOTAL COSTS	00430	========	========	=========

E24.3 COMPUTATION OF NET INCOME FROM FORESTRY AND HUNTING

	Code	Amount
TOTAL VALUE	00420	_____
LESS: TOTAL COSTS	00430	_____
NET INCOME	00400	========

QUESTION	CODING CATEGORIES OR RESPONSE	SKIP TO
E24.4 Where is your main market located?	01 = Town centre 02 = City 07 = Other _____ (SPECIFY)	
E24.5 Who takes your products to the market?	01 = Respondent 02 = Wife 03 = Children 04 = Middleman 07 = Other _____ (SPECIFY)	
E24.6 Who sells them?	01 = Respondent 02 = Wife 03 = Children 04 = Middleman 07 = Other _____ (SPECIFY)	
E24.7 What difficulties do you have in marketing your products?	_____ _____ _____	

E25. WHOLESALE AND RETAIL

QUESTION	CODING CATEGORIES	SKIP TO
E25.1 During the period specified, did you or any member of your family sell goods either on wholesale or retail basis?	01 = Yes 02 = No	E26
E25.2 How many months did you sell such goods?	00521 _____	

E25.3 What is the average gross sales per month? 00522 ----------

TOTAL SALES 00520 ==========

E25.4 During the period specified, did you or any member of your family incur expenses, in cash or in kind, in selling such goods?

	ITEM (1)	CODE (2)	IN CASH (3)	IN KIND (4)	TOTAL (5)
1.	Cost of goods sold	00531			
2.	Others (specify)				
	TOTAL COSTS	00530			

E25.5 COMPUTATION OF NET INCOME FROM WHOLESALE AND RETAIL

	Code	Amount
TOTAL SALES	00520	
LESS: TOTAL COSTS	00530	
NET INCOME	00500	

QUESTION	CODING CATEGORIES OR RESPONSE	SKIP TO
E25.6 Where is your main market located?	01 = Town centre 02 = City 07 = Other _____ (SPECIFY)	
E25.7 Who takes your products to the market?	01 = Respondent 02 = Wife 03 = Children 04 = Middleman 07 = Other _____ (SPECIFY)	
E25.8 Who sells them?	01 = Respondent 02 = Wife 03 = Children 04 = Middleman 07 = Other _____ (SPECIFY)	
E25.9 What difficulties do you have in marketing your products?	_____ _____ _____	

E26. MANUFACTURING (Includes mat weaving, tailoring, dressmaking, bagoong making, and fish drying)

QUESTION	CODING CATEGORIES	SKIP TO
E26.1 During the period specified, did you or any member of your family sell any of the goods manufactured?	01 = Yes 02 = No	E26.4

E26.2 How many months did you sell such goods? 00621 _____

E26.3 What is the average gross sales per month? 00622 ----------

TOTAL SALES 00620 ==========

E26.4 During the period specified, did you or any member of your family consume or give away any of the goods manufactured? 01 = Yes 02 = No

	ITEM	CODE	VALUE CONSUMED	CODE	VALUE GIVEN AWAY AS GIFTS
	(1)	(2)	(3)	(4)	(5)
1.	Cereal preparation	00631	_____	00641	_____
2.	Preparation from roots and tubers	00632	_____	00642	_____
3.	Fruit and vegetable preparation	00633	_____	00643	_____
4.	Meat preparation	00634	_____	00644	_____
5.	Processed fish and marine products	00635	_____	00645	_____
6.	Other food items (SPECIFY) _____	00636	_____	00646	_____
7.	Alcoholic beverages (native wine)	00637	_____	00647	_____
8.	Other non-food items (SPECIFY) _____	00638	_____	00648	_____
	TOTAL	00630	=========	00640	=========

E26.5 During the period specified, did you or any member of your family incur expenses, in cash or in kind, in manufacturing the goods reported?

	ITEM	CODE	IN CASH	IN KIND	TOTAL
	(1)	(2)	(3)	(4)	(5)
1.	Raw materials	00651	_____	_____	_____
2.	Others (specify) _____	_____	_____	_____	_____
	TOTAL COSTS	00650	========	========	=========

E26.6 COMPUTATION OF NET INCOME FROM MANUFACTURING

	Code	Amount
TOTAL SALES	00620	_____
PLUS: TOTAL CONSUMED	00630	_____
PLUS: TOTAL GIFTS	00640	_____
LESS: TOTAL COSTS	00650	_____
NET INCOME	00600	========

QUESTION	CODING CATEGORIES OR RESPONSE	SKIP TO
E26.7 Where is your main market located?	01 = Town centre 02 = City 07 = Other _____ (SPECIFY)	
E26.8 Who takes your products to the market?	01 = Respondent 02 = Wife 03 = Children 04 = Middleman 07 = Other _____ (SPECIFY)	
E26.9 Who sells them?	01 = Respondent 02 = Wife 03 = Children 04 = Middleman 07 = Other _____ (SPECIFY)	

E26.10 What difficulties do you have in marketing your products?

_____

_____

_____

E27. COMMUNITY, SOCIAL, RECREATIONAL, AND PERSONAL SERVICES (Includes medical and dental practice, practice of trade, operation of schools, restaurant, and hotels, etc.)

QUESTION	CODING CATEGORIES	SKIP TO
E27.1 During the period specified, did you or any member of your family receive any compensation/payment for rendering such services?	01 = Yes 02 = No	E27.4
E27.2 How many months did you render service or practice your trade?	00721 _____	
E27.3 What is the average gross receipt per month?	00722 ----------	
TOTAL GROSS RECEIPTS	00720 ==========	

E27.4 During the period specified, did you or any member of your family incur expenses, in cash or in kind, in rendering such services?

	ITEM (1)	CODE (2)	IN CASH (3)	IN KIND (4)	TOTAL (5)
1.	Materials and supplies	00731	_____	_____	_____
2.	Others (specify)				
	_____	_____	_____	_____	_____
	TOTAL COSTS	00730	========	========	=========

E27.5 COMPUTATION OF NET INCOME FROM COMMUNITY, SOCIAL, RECREATIONAL, AND PERSONAL SERVICES

	Code	Amount
TOTAL GROSS RECEIPTS	00720	_____
LESS: TOTAL COSTS	00730	_____
NET INCOME	00700	========

E28. TRANSPORTATION, STORAGE, AND COMMUNICATION SERVICES (Includes operation of jeepneys or taxis, storage and warehousing activities, tour and travel agencies, messenger services, etc.)

QUESTION	CODING CATEGORIES	SKIP TO
E28.1 During the period specified, did you or any member of your family receive any compensation/payment for rendering such services?	01 = Yes 02 = No	E28.4
E28.2 How many months did you operate or render services?	00821 _____	
E28.3 What is the average gross receipt per month?	00822 _____	
TOTAL GROSS RECEIPTS	00820 ==========	

E28.4 During the period specified, did you or any member of your family incur expenses, in cash or in kind, in rendering such services?

	ITEM (1)	CODE (2)	IN CASH (3)	IN KIND (4)	TOTAL (5)
1.	Fuel and oil	00831	_____	_____	_____
2.	Maintenance and repair	00832	_____	_____	_____
3.	Others (specify) _____	00833	_____	_____	_____
	TOTAL COSTS	00830	========	========	=========

E28.5 COMPUTATION OF NET INCOME FROM TRANSPORTATION, STORAGE AND COMMUNICATION SERVICES

	Code	Amount
TOTAL GROSS RECEIPTS	00820	_____
LESS: TOTAL COSTS	00830	_____
NET INCOME	00800	========

E29. MINING AND QUARRYING (Includes salt mining, gold mining, gravel and sand quarrying, etc.)

QUESTION	CODING CATEGORIES	SKIP TO
E29.1 During the period specified, did you or any member of your family dispose of mining and quarrying products?	01 = Yes 02 = No	E30
E29.2 What is the total gross receipts?	00920 ==========	

E29.3 During the period specified, did you or any member of your family incur expenses, in cash or in kind, in producing the products disposed of?

	ITEM (1)	CODE (2)	IN CASH (3)	IN KIND (4)	TOTAL (5)
1.	Materials and supplies	00931	_____	_____	_____
2.	Fuels	00932	_____	_____	_____
3.	Others (specify) _____	00933	_____	_____	_____
	TOTAL COSTS	00930	=========	=========	=========

E29.4 COMPUTATION OF NET INCOME FROM MINING AND QUARRYING

	Code	Amount
TOTAL GROSS RECEIPTS	00920	_____
LESS: TOTAL COSTS	00930	_____
NET INCOME	00900	=========

E30. CONSTRUCTION (Includes repair of a house, building, or any structure)

QUESTION	CODING CATEGORIES	SKIP TO
E30.1 During the period specified, did you or any member of your family receive payment for the construction activity?	01 = Yes 02 = No	E30.3
E30.2 What is the total gross receipts?	01020 ==========	

E30.3 During the period specified, did you or any member of your family incur expenses, for the construction activity?

	ITEM (1)	CODE (2)	IN CASH (3)	IN KIND (4)	TOTAL (5)
1.	Wages of hired labour and paid family members	01031	_____	_____	_____
2.	Materials and supplies	01032	_____	_____	_____
3.	Others (specify) _____	01033	_____	_____	_____
	TOTAL COSTS	01030	=========	=========	=========

E30.4 COMPUTATION OF NET INCOME FROM CONSTRUCTION

	Code	Amount
TOTAL GROSS RECEIPTS	01020	_____
LESS: TOTAL COSTS	01030	_____
NET INCOME	01000	=========

E31. ENTREPRENEURIAL ACTIVITIES NOT ELSEWHERE CLASSIFIED (Including electricity, gas and water; financing; insurance; real estate; and business services)

QUESTION	CODING CATEGORIES	SKIP TO
E31.1 During the period specified, did you or any member of your family receive professional or service fee for activities not elsewhere classified such as legal,	01 = Yes 02 = No	E31.3

accounting and engineering services; advertising services; and machinery and equipment renting and leasing?

E31.2 What is the total gross receipts? 01120 ==========

E31.3 During the period specified, did you or any member of your family incur expenses, in this activity?

	ITEM (1)	CODE (2)	IN CASH (3)	IN KIND (4)	TOTAL (5)
1.	Materials and supplies	01131	_____	_____	_____
2.	Fuels and lubricants	01132	_____	_____	_____
3.	Others (specify) _____	01133	_____	_____	_____
	TOTAL COSTS	01130	========	========	========

E31.4 COMPUTATION OF NET INCOME FROM ENTREPRENEURIAL ACTIVITIES NOT ELSEWHERE CLASSIFIED

	Code	Amount
TOTAL GROSS RECEIPTS	01120	_____
LESS: TOTAL COSTS	01130	_____
NET INCOME	01100	========

F. GENERATING INCOME AND COPING STRATEGIES (to be answered by the head of the household)

NOW, I (WE) WOULD LIKE TO TALK ABOUT WAYS OF GENERATING INCOME AND GENERATION AND THE HOUSEHOLD'S COPING STRATEGIES.

QUESTION	CODING CATEGORIES	SKIP TO
(1) Do you think that your total household income five years ago (1992) was adequate to cover your household expenses then?	01 = Yes 02 = No	Question #3
(2) What strategies did your household adopt during the last five years to generate additional income?	01 = Extend farmed area 02 = Shifted to labour-absorbing productive techniques 03 = Cultivated high value root crops 04 = Engaged in seasonal jobs as wage labourers 05 = Sold home-made products _____ (Specify) 06 = Sold fuelwood and forest products 07 = Family members migrated elsewhere to seek employment 08 = Others _____ (Specify)	
(3) Have you ever had emergency situations in the past five years (1992-1996)?	01 = Yes 02 = No	

QUESTION	CODING CATEGORIES/RESPONSE	SKIP TO
(4) What are these emergency situations? Record all mentioned.	01 = Illness in the family 02 = Crop Failure 03 = Natural disaster _____ (Specify) 04 = Accident _____ (Specify) 05 = House burned 06 = Funeral 07 = Cost of litigation/Fine 08 = Weddings 96 = Other _____ (Specify)	
(5) How did your household respond to the emergency situation?	01 = Borrowing from _____ (Specify) 02 = Mortgage of _____ (Specify) 03 = Sale of _____ (Specify) 04 = Reduced consumption 05 = Children dropped out of school 06 = Others _____ (Specify)	
(6) Who are the first, second, and third persons you approach in times of need?	First person _____ Second Person _____ Third Person _____	

****

PART III. WIFE'S BACKGROUND, KNOWLEDGE, USE OF, AND ACCESS TO HEALTH AND FAMILY PLANNING FACILITIES, and THE HEALTH STATUS OF CHILDREN

Time of Interview Started: _____ Time of Interview Ended:_____

FIRST, I (WE) WOULD LIKE TO ASK SOME QUESTIONS ABOUT YOU.

QUESTION	CODING CATEGORIES/RESPONSE	SKIP TO
(101) For most of the time until you were 12 years old, did you live in a city, in a town, or in a barrio/rural area?	01 = City 02 = Town 03 = Barrio/Rural Area	
(102) In what month and year were you born?	Month _____ Year _____	
(103) How old were you on your last birthday? COMPARE AND CORRECT 102 and PART 1 (6) IF INCONSISTENT.	Age in Completed Years: _____	
(104) Have you ever attended school? COMPARE AND CORRECT PART 1 IF INCONSISTENT.	01 = Yes 02 = No	107

(105)
What is the highest level of school you attended? COMPARE WITH AND CORRECT PART 1 (7) IF INCONSISTENT.

00 = Preschool
01 = Elementary
02 = High School
03 = College or Higher
08 = Don't know 107

(106)
What is the highest grade/year you completed at that level? COMPARE WITH AND CORRECT PART 1 (7) IF INCONSISTENT.

Grade/Year _____
98 = Don't Know

(107)
What is your religion?

01 = Roman Catholic
02 = Protestant
03 = Iglesia ni Kristo
04 = Aglipay
05 = Islam
06 = Other _____ (specify)
07 = None

NOW, I (WE) WOULD LIKE TO ASK YOU SOME QUESTIONS ABOUT WORKING.

(108)
Aside from your own housework, are you currently working?

01 = Yes 110
02 = No

(109)
As you know, some women take up jobs for which they are paid in cash or in kind. Others sell things, have a small business or work on the family farm or in the family business.

Are you currently doing any of these things or any other work?

01 = Yes
02 = No 114

(110)
What is (was) your most recent occupation? That is, what kind of work do (did) you do?

_____

(111)
Were you paid for this work? CHECK ANSWER with PART II on household income.

01 = Yes
02 = No

(112)
Where did you work?

01 = Away from home
02 = At home

(113)
Who usually takes care of (NAME OF YOUNGEST CHILD AT HOME) while you are working?

01= Husband/Partner
02 = Older Child (ren)
03 = Elderly Relatives
04 = Other Relatives
05 = Neighbors/ Friends
06 = Servants/Hired help
07 = Child is in School
08 = Institutional Childcare
09 = Other _____

(114)
Does any other family member need to be cared for?

01 = Yes
02 = No 201

(115)
If YES: WHO ARE THEY? RECORD ALL MENTIONED.

01 = Other young Children
02= Elderly parents of respondent

03 = Elderly parents of Husband
04 = Other elderly relatives
05 = Other _____ (SPECIFY)

NOW, I (WE) WOULD LIKE TO ASK YOU ABOUT THE NEAREST AVAILABLE HEALTH FACILITIES AND SERVICES.

(201)
From your house, which is the nearest health facility that provides health services?

01 = Govt. hospital
02 = RHU/Puericulture Centre
03 = Barangay Health Station
04 = Private Hospital
05 = Private Clinic
06 = Mobile outreach point
07 = Other _____ (SPECIFY)

(202)
How far is the facility from your house in kilometres? _____

(203)
How long does it take to get from here to the health facility? _____

(204)
How often do you visit the health facility?

01= Once a week
02= Once a month
03= Once a year
04 = Other _____ (SPECIFY)
05 = Never 207

(205)
Does HEALTH FACILITY provide:

	YES	NO	DON'T KNOW
prenatal care?	01	02	08
delivery care?	01	02	08
child immunisation?	01	02	08
family planning services?	01	02	08
postnatal services?	01	02	08

(206)
If yes, have you availed of their services?

	YES	NO	DON'T KNOW
prenatal care?	01	02	08
delivery care?	01	02	08
child immunisation?	01	02	08
family planning services?	01	02	08
postnatal services?	01	02	08

QUESTION	CODING CATEGORIES/RESPONSE	SKIP TO
(207) If you have not availed of health facilities or services, cite reason.	01 = Too far 02 = No money 03 = Services are too	

expensive
04 = Too busy
05 = Other _____
(SPECIFY)

NEXT, I (WE) WOULD LIKE TO ASK YOU ABOUT ALL THE BIRTHS YOU HAD DURING YOUR LIFE.

QUESTION	CODING CATEGORIES/RESPONSE	SKIP TO
(301) Have you ever given birth?	01 = Yes 02 = No	 306
(302) Do you have any sons or daughters to whom you have given birth who are now living with you?	01 = Yes 02 = No	 304
(303) How many sons live with you? How many daughters live with you?	Sons at home _____ Daughters at home _____	
(304) Do you have any sons or daughters to whom you have given birth who are still alive but do not live with you?	01 = Yes 02 = No	 306
(305) How many sons are still alive but do not live with you? And how many daughters are alive but do not live with you?	Sons elsewhere _____ Daughters elsewhere _____	
(306) Have you ever given birth to a boy or a girl who was born alive but later died? IF NO, PROBE: Any baby who cried or showed any sign of life but only survived a few hours or days?	01 = Yes 02 = No	 308
(307) In all how many boys have died? And how many girls have died?	Boys dead _____ Girls dead _____	
(308) Some pregnancies end before full term or has a stillbirth. Have you had any pregnancy that did not result in a live birth?	01 = Yes 02 = No	 310
(309) In all, how many such pregnancies have there been?	Pregnancy Loss _____	
(310) Just to make sure I (we) have this right, you have had _____ children who are still living (303 and 305) _____ children who have died (307) _____ pregnancies which did not result in a live birth (309) Is that correct?	01 = Yes 02 = No	 CORRECT AS NECESSARY
(401) NOTE TO INTERVIEWER: CHECK PART 1. Are there children 5 years old and below?	01 = Yes 02 = No	 Go to 501

(402)
ENTER THE LINE NUMBER, NAME, AND SURVIVAL STATUS OF EACH BIRTH SINCE JANUARY 1992 IN THE TABLE. ASK THE QUESTIONS ABOUT ALL OF THESE BIRTHS. (IF THERE ARE MORE THAN 3 BIRTHS, USE ADDITIONAL FORMS.

NOW, I (WE) WOULD LIKE TO ASK SOME QUESTIONS ABOUT MATTERS RELATING TO YOUR PREGNANCY(IES) AND THE HEALTH OF ALL YOUR CHILDREN BORN IN THE PAST FIVE YEARS (1992-1996).

	LINE NUMBER (FROM PART 1)		
	(Last birth)	(Next-to-last-birth)	(Second-from-last birth)
(403) At the time you became pregnant with (NAME), did you want to become pregnant then, did you want to wait until later or did you want no more children at all?	01 = THEN (Skip to 405) 02 = LATER 03 = NO MORE (Skip to 405)	01= THEN (Skip to 405) 02 = LATER 03 = NO MORE (Skip to 405)	01 = THEN (Skip to 405) 02 = LATER 03 = NO MORE (Skip to 405)
(404) How much longer would you like to have waited?	Months _____ Years _____ Don't Know ____	Months _____ Years _____ Don't Know ____	Months _____ Years _____ Don't Know ___
(405) When you were pregnant with (NAME), did you see anyone for prenatal care for this pregnancy?	Health Professional A = Doctor B = Nurse C = Midwife	Health Professional A= Doctor B= Nurse C = Midwife	Health Professional A= Doctor B = Nurse C = Midwife
IF YES, whom did you see? Anyone else? RECORD ALL PERSONS SEEN.	Other Person D =Trained Hilot E = Untrained Hilot F = Other _____ (Specify) G = No one (Skip to 407)	Other Person D =Trained Hilot E= Untrained Hilot F = Other _____ (Specify) G = No one (Skip to 407)	Other Person D =Trained Hilot E= Untrained Hilot F = Other ____ (Specify) G = No one (Skip to 407)
(406) How many prenatal visits did you have during this pregnancy?	No. of Visits _____ 98 = Don't know	No. of Visits ___ 98 = Don't know	No. of Visits __ 98 = Don't know

(407) When you were pregnant with (NAME) were you given any of the following:

	LINE NUMBER (FROM PART 1)		
	(Last birth)	(Next-to-last-birth)	(Second-from-last birth)
	YES NO DK	YES NO DK	YES NO DK
Iron Tablet/capsule?	01 02 08	01 02 08	01 02 08
Iodine capsule?	01 02 08	01 02 08	01 02 08
Tetanus toxoid?	01 02 08	01 02 08	01 02 08

(408) Did you see anyone for post-natal check-up after the birth of (NAME) last child?

Health Professional
A = Doctor
B = Nurse
C = Midwife

XXXXXXXXXXXXXXXX

IF YES, Whom did you see? Anyone else? Record all persons seen.

Other Person
D = Trained Hilot
E = Untrained Hilot
F = Other _____ (Specify)

G = No one

(409) Have you ever breastfeed (NAME)? IF 'YES', Skip to 411.	01 = Yes 02 = No	01 = Yes 02= No	01 = Yes 02 = No
(410) Why did you not breastfeed (NAME)?	01= Mother ILL/Weak 02 = Child ILL/Weak 03 = Child Died 04 = Nipple/Breast Problem 05 = Insufficient Milk 06 = Mother Working 07 = Child Refused 08 = Other_____ (Specify)	01= Mother ILL/Weak 02 = Child ILL/Weak 03 = Child Died 04 = Nipple/Breast Problem 05 =Insufficient Milk 06 = Mother Working 07 = Child Refused 08 = Other_____ (Specify)	01= Mother ILL/Weak 02 = Child ILL/Weak 03 = Child Died 04 = Nipple/Breast Problem 05 =Insufficient Milk 06 = Mother Working 07 = Child Refused 08 = Other _____ (Specify)
(411) Has (NAME) had diarrhoea in the last two weeks?	01 = Yes 02 = No	01 = Yes 02 = No	01 = Yes 02 = No
(412) For how many days has the diarrhoea lasted/did the diarrhoea last? IF LESS THAN 1 DAY, RECORD '00'.	DAYS _____	DAYS _____	DAYS _____
(413) Was anything given to treat the diarrhoea?	01 = Yes 02 = No (Skip to 414) 08 = Don't Know	01 = Yes 02 = No (Skip to 414) 08 = Don't Know	01 = Yes 02 = No (Skip to 414) 08 = Don't Know
(414) What was given to treat the diarrhoea? Anything else? Record all mentioned.	A = Fluid from ORS Packet B = Rice Water/"AM" C = Antibiotic (Pill or Syrup) D = Other Pill or Syrup E = Injection F=(I.V.)Intravenous G = Home Remedy/ Herbal Medicines H = Other _____ (Specify)	A = Fluid from ORS Packet B = Rice Water/"AM" C = Antibiotic (Pill or Syrup) D = Other Pill or Syrup E = Injection F = (I.V.)Intravenous G = Home Remedy/ Herbal Medicines H = Other _____ (Specify)	A = Fluid from ORS Packet B = Rice Water/"AM" C = Antibiotic (Pill or Syrup) D = Other Pill or Syrup E = Injection F=(I.V.) Intravenous G = Home Remedy/ Herbal Medicines H = Other _____ (Specify)
(415) Did you seek advice or treatment for diarrhoea?	01 = Yes 02 = No (Skip to 501)	01 = Yes 02 = No (Skip to 501)	01 = Yes 02 = No (Skip to 501)
(416) Where did you seek advice or treatment? Where else? Record all mentioned.	Public Sector A = Govt. Hosp/Clinic B = Rural Health Unit C = Bgy.Health Station D = Mobile Clinic E = Community Health Worker	Public Sector A=Govt. Hosp/Clinic B = Rural Health Unit C = Bgy. Health Station D = Mobile Clinic E = Community Health Worker	Public Sector A=Govt. Hosp/Clinic B = Rural Health Unit C = Bgy. Health Station D = Mobile Clinic E = Community Health Worker

Medical Private Sector	Medical Private Sector	Medical Private Sector
F = Prvt.Hospital/ Clinic	F = Prvt.Hospital/ Clinic	F = Prvt.Hospital/ Clinic
G = Pharmacy	G = Pharmacy	G = Pharmacy
H = Private Doctor	H = Private Doctor	H = Private Doctor
I = Mobile Clinic	I = Mobile Clinic	I = Mobile Clinic
J = Community Health Worker	J = Community Health Worker	J = Community Health Worker
Other Private Sector	**Other Private Sector**	**Other Private Sector**
K = Store	K = Store	K = Store
L = Hilot/Herbolario	L = Hilot/Herbolario	L =Hilot/Herbolario
M= Other _____ (Specify)	M= Other _____ (Specify)	M= Other _____ (Specify)

NOW, I (WE) WOULD LIKE TO ASK YOU TO TALK ABOUT YOUR FAMILY SIZE.

QUESTION	CODING CATEGORIES/RESPONSE	SKIP TO
(501) Have you and your husband/partner ever discussed the number of children you would like to have?	01 = Yes 02 = No	
(502) Do you think your husband/partner wants the same number of children that you want, or does he want more or fewer than what you want?	01 = Same Number 02 = More children 03 = Fewer Children 04 = Don't Know	
(503) IF RESPONDENT HAS LIVING CHILDREN: If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be?	Number _____ Other Answer _____ _____ _____	
IF RESPONDENT HAS NO LIVING CHILDREN: If you could choose exactly the number of children to have in your whole life, how many would that be?	Number _____ Other Answer _____ _____ _____	
(504) Why do you desire this family size?	_____ _____ _____	
(505) Do you have this family size? (CHECK with answers in Part I).	01 = Yes 02 = No	
(506) What do you think is the best number of months or years between the birth of one child and the birth of the next child?	01 = Months _____ 02 = Years _____ 996 = Other _____ (specify)	
(507) When you get old, do you expect to live with one or more children?	01 = Yes 02 = No	

(508)
Where do you expect to live?

01 = Respondent's house
02 = Child(ren's) house
03 = Other _____
(Specify)

(509)
Do you expect to receive financial or material support from your children/relatives when you get old?

01 = Yes
02 = No
03 = Depends on children
04 = Other _____
(Specify)

(510)
If family planning facilities were available, would you make use of them?

01 = Yes
02 = No

(511)
Please state your reason why you would or would not make use of family planning facilities.

_____

_____

_____

NEXT, I (WE) WOULD LIKE TO TALK ABOUT THE VARIOUS WAYS AND METHODS THAT A COUPLE CAN USE TO DELAY OR AVOID A PREGNANCY.

(601)
Which ways or methods of family planning have you heard about?

Encircle code 01 in column (3) for each method mentioned spontaneously at the onset. Then proceed down column (2) reading the name and description of each method not mentioned spontaneously. Encircle code 2 if method is recognised and code 3 if not recognised. Ask 403 and 404 for each method with code 1 or 2 circled in 402.

LINE NO.	METHOD	(402) Have you ever heard of (METHOD)?	(403) Have you ever used (METHOD)?	(404) Do you know where a a person could go to get (METHOD)?
(1)	(2)	(3)	(4)	(5)
1.	PILL. Women can take a pill everyday.	01= Yes/spontaneous 02 = Yes/probed 03 = No	01 = Yes 02 = No	01 = Yes, same barangay 02 = Yes, another barangay 03 = No
2.	IUD. Women can have a loop or coil placed inside the uterus by a doctor or a nurse.	01= Yes/spontaneous 02 = Yes/probed 03 = No	01 = Yes 02 = No	01 = Yes, same barangay 02 = Yes, another barangay 03 = No
3.	INJECTIONS Women can have an injection by a doctor or nurse which stops them from becoming pregnant for several months.	01= Yes/spontaneous 02 = Yes/probed 03 = No	01 = Yes 02 = No	01 = Yes, same barangay 02 = Yes, another barangay 03 = No
4.	DIAPHRAGM, FOAM, JELLY, CREAM. Women can place a sponge, suppository, diaphragm, jelly, or cream inside before intercourse.	01= Yes/spontaneous 02 = Yes/probed 03 = No	01 = Yes 02 = No	01 = Yes, same barangay 02 = Yes, another barangay 03 = No
5.	CONDOM Men can use a rubber sheath during sexual intercourse.	01= Yes/spontaneous 02 = Yes/probed 03 = No	01 = Yes 02 = No	01 = Yes, same barangay 02 = Yes, another barangay 03 = No

6.	LIGATION, FEMALE STERILISATION. Women can have an operation to avoid having any more children.	01= Yes/spontaneous 02 = Yes/probed 03 = No	Have you ever had an operation to avoid having any more children? 01 = Yes 02 = No	01= Yes, same barangay 02 = Yes, another barangay 03 = No
7.	VASECTOMY, MALE STERILISATION. Men can have an operation to avoid having any more children.	01= Yes/spontaneous 02 = Yes/probed 03 = No	Have you and your partner ever had an operation to avoid having any more children? 01 = Yes 02 = No	01= Yes, same barangay 02 = Yes, another barangay 03 = No
8.	NATURAL FAMILY PLANNING, RHYTHM PERIODIC ABSTINENCE	01= Yes/spontaneous 02 = Yes/probed 03 = No	01 = Yes 02 = No	Do you know where a person can obtain on how to use natural family planning? 01 = Yes, same barangay 02 = Yes, another barangay 03 = No
9.	WITHDRAWAL. Men can be careful and pull out before climax.	01= Yes/spontaneous 02 = Yes/probed 03 = No	01 = Yes 02 = No	XXXXXXXXXXXXXX XXXXXXXXXXXXXX XXXXXXXXXXXXXX
10.	Have you heard of any other ways or methods that women or men can use to avoid pregnancy? SPECIFY 1 _____ 2_____ 3_____	01= Yes/spontaneous 02 = Yes/probed 03 = No	 01 = Yes 02 = No 01 = Yes 02 = No 01 = Yes 02 = No	 XXXXXXXXXXXXXX XXXXXXXXXXXXXX XXXXXXXXXXXXXX XXXXXXXXXXXXXX XXXXXXXXXXXXXX XXXXXXXXXXXXXX

IF YOU ARE USING AN ARTIFICIAL METHOD OF CONTRACEPTION:

OTHERWISE, GO TO 613.

(602)
How long does it take to travel from your home to SOURCE?

Minutes _____
Hours _____

(603)
Is it easy or difficult to get there?

01 = Yes
02 = No

(604)
How did you travel to (SOURCE) the last time you went?

01 = Walked
02 = Personal vehicle/cart
03 = Hired vehicle/cart
04 = Public transportation
05 = Other _____ (SPECIFY)

QUESTION	CODING CATEGORIES/RESPONSE	SKIP TO
(605) How much did it cost you to travel to and from (SOURCE) on your last visit?	Peso _____ 99996 = Free 99998 = Don't know	
(606) On which days of the week does this (SOURCE) provide family planning services/ supplies	01 = Everyday 02 = Other _____ (SPECIFY)	
(607) Are the days when family planning services/ supplies are available at (SOURCE) convenient for you?	01 = Yes 02 = No 08 = Don't know	
(608) Are the hours of operation at (SOURCE) convenient for you?	01 = Yes 02 = No 08 = Don't Know	
(609) On your last visit to SOURCE, were you unable to obtain your prescribed or preferred method because it was no longer in stock?	01 = Yes 02 = No 08 = Don't Know	
(610) What is the main reason you decided to use CURRENT BIRTH CONTROL METHOD rather than some other method of family planning?	01 = Recommendation of Family Planning Worker 02 = Recommendation of Friend/ Relative 03 = Side Effects of Other Method 04 = Convenience 05 = Access/ Availability 06 = Cost 07 = Wanted permanent method 08 = Husband preferred 09 = Wanted more effective method 10 = Religion 11 = Other _____ (SPECIFY) 98 = Don't know	
(611) Are you having any problem in using CURRENT METHOD?	01 = Yes 02 = No	615
(612) What is the main problem?	01 = Husband disapproves 02 = Side Effects 03 = Health Concerns 04 = Access/Availability 05 = Cost 06 = Inconvenient to Use 07 = Sterilised, Wants Children 08 = Other _____ (SPECIFY) 98 = Don't Know	
(613) I (We) see that you are not currently using a method to delay or avoid pregnancy, do you intend to use a birth control method at any time in the future?	01 = Yes 02 = No 08 = Don't Know	615

(614)
What is the main reason you do not intend to use a method?

01 = Wants children
02 = Lack of knowledge
03 = Opposed to family planning
04 = Cost too much
05 = Side Effects
06 = Health Concerns
07 = Hard to get Methods
08 = Religion
09 = Fatalistic
10 = Old/Difficult to get pregnant/Infrequent sex/ Husband Away
11 = Menopause/Had hysterectomy
12 = Inconvenient
13 = Not married
14 = Other _____ (SPECIFY)
98 = Don't Know

(615)
In what way do you think family planning facilities could be improved?

_____

_____

_____

(616)

In the last month, have you heard a message about family planning on:			YES	NO
	the radio?	RADIO	1	2
	television?	TELEVISION	1	2

Annex 8
(Chapter 4)

PROTOCOL GUIDE FOR FOCUS GROUP DISCUSSIONS

(This guide shall be used by the moderator to elicit the views of different members of the household on issues relating to poverty, fertility and the environment - particularly caring for forest resources.)

GROUP I. FATHERS

A. POVERTY ISSUE [**References**: Beck (1989); Jodha (1988); Chambers (1983 and 1995); Dasgupta (1995)]

1. Who are the poor? Who are the rich? Why do you think so?

2. Is the quality of your life, and that of members of your family improving? If 'yes', why? If 'no', why?

In terms of:

2a. your annual (or monthly) income? your annual (or monthly) household income? sources of income?

2b. reliance on traditional patrons, landlords, and resourceful people for sustenance, employment and income

[Note to moderator : After a brief free-for-all discussion on the sub-topics (2b-f) ask respondents to raise their right hand if their answer is yes to the following questions (except for questions #2civ, #2fiv and #2fv). Record the number.]

(i) Do you have household members working as tenants or labourers at the present time? How about ten years ago?

(ii) Do you reside on patron's land/yard at present? Ten years ago?

(iii) Do you borrow money or foodgrain from patrons during off-season at present? Ten years ago?

(iv) Do you market farm produce only through your patrons at present? Ten years ago?

(v) Do you take loans from other people besides patrons at present? If 'yes', who are these people? How about ten years ago?

2c. dependence on low pay-off or inferior jobs/ options

(i) At the present time, do you engage in food gathering? fuel gathering? fodder gathering? How about ten years ago?

(ii) At present, do you have any household members engaging in part-time petty jobs (helping in small chores in exchange for a meal as a wage)? Ten years ago?

(iii) At present, do you have members seasonally out-migrating for a job? Ten years ago?

(iv) At present, how good do you think your schools are? Ten years ago?

(v) At present, do you withdraw their children from school during the crop season to help in the farm, to earn, etc. Ten years ago?

2d. mobility and liquidity position

(i) Do you sell 80 per cent of your marketed produce during the post-harvest period at the present time? Ten years ago?

(ii) Do you keep 25 per cent of their surplus for sale up to the next rain at the present time? Ten years ago?

(iii) Do you purchase key provisions in bulk at the present time? Ten years ago?
(iv) Do you rely on day-to-day petty purchases of key provisions at the present time? Ten years ago?
(v) Do you make cash purchases during the slack season at the present time? Ten years ago?
(vi) At present, do you possess ready cash up to 500 pesos or more at home during the slack season? Ten years ago?
(vii) Do you have household members who travel by paid transport more than twice a year to outside the province at the present time? Ten years ago?

2e. consumption patterns/practices
(i) At present, do you occasionally consume green vegetables? Ten years ago?
(ii) At present, do you use milk/milk products regularly? Ten years ago?
(iii) At present, do you consume sugar regularly? Ten years ago?
(iv) At present, do you consume rice everyday? Ten years ago?
(v) At present, do you have three meals a day during the harvest season? the slack season? Ten years ago?
(vi) At present, do the women and children in your household wear shoes regularly? Ten years ago?
(vii) At present, are the women in your household provided maternity feeding up to a month or more? Ten years ago?

2f. housing condition and acquisition of consumer durables
(i) Do your households have gates with doors at present? Ten years ago?
(ii) Do you have separate provision of stay for humans and animals at present? Ten years ago?
(iii) Do you have a private place (such as a bathroom) for women at present? Ten years ago?
(iv) How good do you think your water supply facilities for washing and drinking are? Ten years ago?
(v) How good do you think your access to electricity is? Ten years ago?

3. Do you think most of the people who were working on the same job as you did five years ago (1992) were poor? Why do you think so? [If they think most of the people were poor, probe: Why is this?]

4. Do you think most of the people who are working on the same occupation as you do at present (1997) are poor? Please explain your answer. [If they think most of the people are poor, probe: Why is this?]

5. Do you think you will be poor five years from now (2002)? What is your basis for saying so?

6. How do you get on with day-to-day living? (that is, everyday survival strategies)

Possible strategies: (If mentioned, probe.)
- use of common property resources (collection of fuel, gathering of wild foods)
- changes in eating and food preparation
- shared rearing of livestock
- mutual support networks and power (do the poor help each other? if 'no' why don't they cooperate with each other? are the poor helped by the rich? do the rich cheat the poor? do the poor get organised? If 'no', why? Is self-respect important?)

7. How would you cope with contingencies requiring a substantial amount of money (such as a major illness in the family, crop failure, natural disaster, accidents, etc.)?

8. What do you want most in life? (that is, priorities in life)

9. Do you participate in organisations? If 'yes', what type of organisations (e.g., Govt.-supported, private or religious) did you join in? Did you benefit from the services these organisations render? If 'yes', what benefits did you get?

If 'no', why ?

10. Are there credit facilities available in your area? If 'yes', what are these facilities? Did you secure a loan from these sources?

If 'yes', did you encounter any problems in borrowing and in paying the principal and interest (if any)? What were these problems?
If 'no', why did you not secure a loan from these sources? Where did you borrow instead?

B. FERTILITY ISSUE [**References**: Caldwell et al. (1988a and 1988b); NSO (1994b); Dasgupta (1995) and Chambers (1995)]

1. What are the advantages and disadvantages of the husband and wife discussing the number of children they should have?

2. What are the advantages and disadvantages of the husband and wife agreeing on the number of children they should have?

3. What are the advantages and disadvantages of parents or parents-in-law influencing the couple's decision as to the number of children their married children should have?

4. What are the good and bad things about having a large family?

COSTS
4a. Do you find the cost in bringing up children increasing or decreasing? What costs in particular? Do these costs influence the decision as to how many children you want?
BENEFITS
4b. Do your children help you in the farm or in your work? If 'yes', at what age do they start doing so?
4c. Do your children help you with other family chores? If 'yes', what specific chores?

Do they:
(a) cook food?
(b) wash dishes or clothes?
(c) iron clothes
(d) mind their siblings?
(e) go to the market?
(f) care for livestock?
(g) lead animals to pasture?
(h) fetch water?
(i) gather fuelwood?
(j) gather fodder?
(k) take messages to other people?

At what age do they start doing so?
How many hours a day do your children work for you? Do you need more children to help you in your work?

4d. When you get old, do you expect to live with one or more children?
4e. Do you expect to receive financial or material support from your children/relatives when you get old?

5. What are the advantages and disadvantages of birth spacing?

5a. What do you think is the best number of months or years between the birth of one child and the birth of the next child?

6. What are the good and bad things about having sons?

7. What are the good and bad things about having daughters?

8. What are the good and bad things about your neighbour's having a large family?

C. ENVIRONMENTAL ISSUE

1. How is the countryside changing? Good or bad?

1a. What is its effect on you?
1b. What is its effect on your parents?
1c. What is its effect on your grandparents (if still living)?
1d. What is its effect on your children?

2. Where is the nearest forest? What do you get out of it?

3. If the size of the nearest forest has declined in the last five years, do you find you need more labour (children?) to help with maintaining the household?

4. What are the advantages and disadvantages of protecting the forests? Who should protect the forests? If it cannot be protected, how serious do you think would the condition of the forests be in the next five years (2002)?

GROUP II. MOTHERS

A. POVERTY ISSUE [References: Beck (1989); Jodha (1988); Chambers (1983 and 1995); and Dasgupta (1995)]

1. Who are the poor? Why do you think so?

2. Is the quality of your life, and that of members of your family improving? If 'yes', why? If 'no', why?

In terms of:

2a. your annual (or monthly) income? your annual (or monthly) household income? sources of income?

2b. reliance on traditional patrons, landlords, and resourceful people for sustenance, employment and income
[Note to moderator: After a brief free-for-all discussion on the sub-topics (2b-f) ask respondents to raise their right hand if their answer is yes to the following questions (except for questions #2civ, #2fiv and #2fv). Record the number.]
(i) Do you have household members working as tenants or labourers at the present time? How about ten years ago?
(ii) Do you reside on patron's land/yard at present? Ten years ago?
(iii) Do you borrow money or foodgrain from patrons during off-season at present? Ten years ago?
(iv) Do you market farm produce only through your patrons at present? Ten years ago?
(v) Do you take loans from other people besides patrons at present? If 'yes', who are these people? How about ten years ago?

2c. dependence on low pay-off or inferior jobs/ options
(i) At the present time, do you engage in food gathering? fuel gathering? fodder gathering? How about ten years ago?
(ii) At present, do you have any household members engaging in part-time petty jobs (helping in small chores in exchange for a meal as a wage)? Ten years ago?
(iii) At present, do you have members seasonally out-migrating for a job? Ten years ago?

(iv) At present, how good do you think your schools are? Ten years ago?
(v) At present, do you withdraw their children from school during the crop season to help in the farm, to earn, etc. Ten years ago?

2d. mobility and liquidity position
(i) Do you sell 80 per cent of your marketed produce during the post-harvest period at the present time? Ten years ago?
(ii) Do you keep 25 per cent of their surplus for sale up to the next rain at the present time? Ten years ago?
(iii) Do you purchase key provisions in bulk at the present time? Ten years ago?
(iv) Do you rely on day-to-day petty purchases of key provisions at the present time? Ten years ago?
(v) Do you make cash purchases during slack season at the present time? Ten years ago?
(vi) At present, do you possess ready cash up to 500 pesos or more at home during the slack season? Ten years ago?
(vii) Do you have household members who travel by paid transport more than twice a year to outside the province at the present time? Ten years ago?

2e. consumption patterns/practices
(i) At present, do you occasionally consume green vegetables? Ten years ago?
(ii) At present, do you use milk/milk products regularly? Ten years ago?
(iii) At present, do you consume sugar regularly? Ten years ago?
(iv) At present, do you consume rice everyday? Ten years ago?
(v) At present, do you have three meals a day during the harvest season? the slack season? Ten years ago?
(vi) At present, do the women and children in your household wear shoes regularly? Ten years ago?
(vii) At present, are the women in your household provided maternity feeding up to a month or more? Ten years ago?

2f. housing condition and acquisition of consumer durables
(i) Do your households have gates with doors at present? Ten years ago?
(ii) Do you have separate provision of stay for humans and animals at present? Ten years ago?
(iii) Do you have a private place (such as a bathroom) for women at present? Ten years ago?
(iv) How good do you think your water supply facilities for washing and drinking are? Ten years ago?
(v) How good do you think your access to electricity is? Ten years ago?

3. Do you think most of the women in your neighbourhood were poor five years ago (1992)? Why do you think so? [If they think most of the women were poor, probe: Why is this?]

4. Do you think most of the women in your neighbourhood are poor at present (1997)? Please explain your answer. [If they think most of the women are poor, probe: Why is this?]

5. Do you think women like you will be poor five years from now (2002)? What is your basis for saying so?

6. How do you get on with day-to-day living? (that is, everyday survival strategies)

Possible strategies: (If mentioned by the group, probe.)
- use of common property resources (collection of fuel, gathering of wild foods)
- changes in eating and food preparation
- shared rearing of livestock

- mutual support networks and power (do the poor help each other? if 'no' why don't they cooperate with each other? are the poor helped by the rich? do the rich cheat the poor? do the poor get organised? If 'no', why? Is self-respect important?)

7. How would you cope with contingencies requiring a substantial amount of money (such as a major illness in the family, crop failure, natural disaster, accidents, etc.)?

8. Who are the first, second, and third persons you approach in times of need?

9. What do you want most in life? (priorities in life)

10. Do you participate in organisations?

If 'yes', what type of organisations (e.g., Govt.-supported, private or religious) did you join in? Did you benefit from the services these organisations render? If 'yes', what benefits did you get?

If 'no', why not?

Are there women's groups or groups for women's concerns in the area?
Do you go to their meetings? Do you listen to them? Do you imagine what they say? Did you get anything from the services these organisations render? If 'yes', what benefits did you get?

If 'no', why not?

10. Are there credit facilities available in your area? If 'yes', what are these facilities? Did you secure a loan from these sources?

If 'yes', did you encounter any problems in borrowing and in paying the principal and interest (if any)? What are these problems?

If 'no', why did you not secure a loan from these sources? Where did you borrow instead?

B. FERTILITY ISSUE [References: Caldwell et al. (1988a and 1988b); NSO (1994b); Dasgupta (1995); and Chambers (1995)]

1. What are the advantages and disadvantages of the husband and wife discussing the number of children they should have?

2. What are the advantages and disadvantages of the husband and wife agreeing on the number of children they should have?

3. What are the advantages and disadvantages of parents or parents-in-law influencing the couple's decision as to the number of children their married children should have?

4. What are the good and bad things about having a large family?

<u>COSTS</u>
4a. Do you find the cost in bringing up children increasing or decreasing? What costs in particular? Do these costs influence the decision as to how many children you want?

<u>BENEFITS</u>
4b. Do your children help you in the farm or in your work? If yes, at what age do they start doing so? Do they produce simple marketable products?
4c. Do your children help you with other family chores? If 'yes', what specific chores?

Do they:
(a) cook food?
(b) wash dishes or clothes?
(c) iron clothes
(d) mind their siblings?
(e) go to the market?

(f) care for livestock?
(g) lead animals to pasture?
(h) fetch water?
(i) gather fuelwood?
(j) gather fodder?
(k) take messages to other people?

At what age do they start doing so?
How many hours a day do your children work for you? Do you need more children to help you in your work?

4d. When you get old, do you expect to live with one or more children?
4e. Do you expect to receive financial or material support from your children/relatives when you get old?

5. What are the advantages and disadvantages of birth spacing?

5a. What do you think is the best number of months or years between the birth of one child and the birth of the next child?

6. What are the good and bad things about having sons?

7. What are the good and bad things about having daughters?

8. What are the good and bad things about your neighbour's having a large family?

C. ENVIRONMENTAL ISSUE

1. How is the countryside changing? Good or bad?

1a. What is its effect on you?
1b. What is its effect on your parents?
1c. What is its effect on your grandparents (if still living)?
1d. What is its effect on your children?

2. Where is the nearest forest? What do you get out of it?

3. If the size of the nearest forest has declined in the last five years, do you find you need more labour (children?) to help with maintaining the household?

4. What are the advantages and disadvantages of protecting the forests? Who should protect the forests? If it cannot be protected, how serious do you think would the condition of the forests be in the next five years (2002)?

GROUP III. ELDEST SONS (NEVER MARRIED)

A. POVERTY ISSUE [References: Beck (1989); Jodha (1988); Chambers (1983 and 1995); Dasgupta (1995)]

1. Who are the poor? Why do you think so?

2. Is the quality of your life, and that of your family improving? If 'yes', why?

If 'no', why not?

3. Do you think most of the people in your neighbourhood were poor five years ago (1992)? Why do you think so? [If they think most of the people were poor, probe: Why is this?]

4. Do you think most of the people in your neighbourhood are poor at present (1997)? Please explain your answer. [If they think most of the people are poor, probe: why do they think so?

5. Do you think most of the people in your neighbourhood will be poor five years from now (2002)? What is your basis for saying so?

6. What do you want most in life?

7. Who are the first, second, and third persons your family approaches in times of need?

8. Do you participate in organisations?

If yes, what type of organisations (e.g., Govt.-supported, private or religious) did you join in? Did you benefit from the services these organisations render? If 'yes', what benefits did you get?

If no, why?

B. FERTILITY ISSUE [**References**: Caldwell et al. (1988a and 1988b); Dasgupta (1995); and Chambers (1995)]

1. Do you think your parents should discuss the number of children they should have?

2. Do you think your parents should both agree on the number of children they should have?

3. Do you think your grandparents should have a say on the number of children your parents should have?

4. What are the good and bad things about having a large family?

COSTS

4a. Do you find the cost in bringing up you and your siblings increasing or decreasing? What costs in particular? Do you think these costs influence the decision of your parents as to how many children they want?

BENEFITS

4b. Do you help in the farm or in your parents' work? If yes, at what age did you start doing so?

4c. Do you help in other family chores? What specific chores?

Do you:
(a) cook food?
(b) wash dishes or clothes?
(c) iron clothes
(d) mind their siblings?
(e) go to the market?
(f) care for livestock?
(g) lead animals to pasture?
(h) fetch water?
(i) gather fuelwood?
(j) gather fodder?
(k) take messages to other people?

If 'yes', at what age did you start doing so?
How many hours a day do you work on household chores? Do you need more children to help you in your work?

4d. When your parents get old, do you expect them to live with you or your siblings?

4e. Are you expected to provide financial or material support for your parents when they get old?

5. Do you prefer to have male siblings? Why do you prefer to have male siblings?

6. Do you prefer to have female siblings? Why do you prefer to have female siblings?

7. What are the good and bad things about your neighbour's having a large family?

C. ENVIRONMENTAL ISSUE

1. How is the countryside changing? Good or bad?

1a. What is its effect on you?
1b. What is its effect on your parents?
1c. What is its effect on your grandparents?
1d. What is its effect on your siblings?

2. Where is the nearest forest? What do you get out of it?

3. If the size of the nearest forest has declined in the last five years, do you find your parents need more labour (children?) to help with maintaining the household?

4. What are the advantages and disadvantages of protecting the forests? Who should protect the forests? If it cannot be protected, how serious do you think would the condition of the forests be in the next five years (2002)?

GROUP IV. ELDEST DAUGHTERS (NEVER MARRIED)

A. POVERTY ISSUE [**References:** Beck (1989); Jodha (1988); Chambers (1983 and 1995); and Dasgupta (1995)]

1. Who are the poor? Why do you think so?

2. Is the quality of your life, and that of your family improving? If 'yes', why? If 'no', why not?

3. Do you think most of the people in your neighbourhood were poor five years ago (1992)? Why do you think so? [If they think most of the people were poor, probe: Why is this?]

4. Do you think most of the people in your neighbourhood are poor at present (1997)? Please explain your answer. [If they think most of the people are poor, probe: Why is this?]

5. Do you think most of the people in your neighbourhood will be poor five years from now (2002)? What is your basis for saying so?

6. What do you want most in life?

7. Who are the first, second, and third persons your family approaches in times of need?

8. Do you participate in organisations? If 'yes', what type of organisations (for example, Govt.-supported, private or religious) did you join in? Did you benefit from the services these organisations render? If 'yes', what benefits did you get?

If no, why not?

B. FERTILITY ISSUE [**References**: Caldwell et al. (1988a and 1988b); NSO (1994b) Dasgupta (1995) and Chambers (1995)]

1. Do you think your parents should discuss the number of children they should have?

2. Do you think your parents should both agree on the number of children they should have?

3. Do you think your grandparents should have a say on the number of children your parents should have?

4. What are the good and bad things about having a large family?

COSTS

4a. Do you find the cost in bringing up you and your siblings increasing or decreasing? What costs in particular? Do you think these costs influence the decision of your parents as to how many children they want?

BENEFITS

4b. Do you help in the farm or in your parents' work? If yes, at what age did you start doing so?

4c. Do you help in other family chores? What specific chores?

Do you:

(a) cook food?
(b) wash dishes or clothes?
(c) iron clothes
(d) mind their siblings?
(e) go to the market?
(f) care for livestock?
(g) lead animals to pasture?
(h) fetch water?
(i) gather fuelwood?
(j) gather fodder?
(k) take messages to other people?

If 'yes', at what age did you start doing so?
How many hours a day do you work on household chores? Do you need more children to help you in your work?

4d. When your parents get old, do you expect them to live with you or your siblings?

4e. Are you expected to provide financial or material support for your parents when they get old?

5. Do you prefer to have male siblings? Why do you prefer to have male siblings?

6. Do you prefer to have female siblings? Why do you prefer to have female siblings?

7. What are the good and bad things about your neighbour's having a large family?

C. ENVIRONMENTAL ISSUE

1. How is the countryside changing? Good or bad?

1a. What is its effect on you?
1b. What is its effect on your parents?
1c. What is its effect on your grandparents?
1d. What is its effect on your siblings?

2. Where is the nearest forest? What do you get out of it?

3. If the size of the nearest forest has declined in the last five years, do you find your parents need more labour (children?) to help with maintaining the household?

4. What are the advantages and disadvantages of protecting the forests? Who should protect the forests? If it cannot be protected, how serious do you think would the condition of the forests be in the next five years (2002)?

GROUP V. YOUNGER CHILDREN

A. POVERTY ISSUE [**References**: Beck (1989); Jodha (1988); Chambers (1983 and 1995); Dasgupta (1995)]

1. Who are the poor? Why do you think so?

2. Do you think most of the people in your neighbourhood are poor at present (1997)? Why do you think so?

3. What do you want most in life?

B. FERTILITY ISSUE [**References**: Caldwell et al. (1988a and 1988b); NSO (1994b); Dasgupta (1995); and Chambers (1995)]

1. What are the good and bad things about having many brothers and sisters?
2. Do you help at home in doing household chores? What specific chores?

Do you:

(a) wash dishes?
(b) fetch water?
(c) gather fuelwood?
(d) gather fodder?
(e) deliver messages?

If yes, at what age did you start doing so?

3. Do you go to school? Do you have time to do homework?

C. ENVIRONMENTAL ISSUE

Where is the nearest forest? What do you get out of it?

GROUP VI. GRANDPARENTS

A. POVERTY ISSUE [**References**: Beck (1989); Jodha (1988); Chambers (1983 and 1995); and Dasgupta (1995)]

1. Who are the poor? Why do you think so?

2. Is the quality of your life, and that of members of your family improving? If 'yes', why? If 'no', why not?

In terms of:

2a. your annual (or monthly) income? your annual (or monthly) household income? sources of income?

2b. reliance on traditional patrons, landlords, and resourceful people for sustenance, employment and income
[Note to moderator: After a brief free-for-all discussion on the sub-topics (2b-f) ask respondents to raise their right hand if their answer is yes to the following questions (except for questions #2civ, #2fiv and #2fv). Record the number.]
(i) Do you have household members working as tenants or labourers at the present time? How about ten years ago?
(ii) Do you reside on patron's land/yard at present? Ten years ago?
(iii) Do you borrow money or foodgrain from patrons during off-season at present? Ten years ago?
(iv) Do you market farm produce only through your patrons at present? Ten years ago?
(v) Do you take loans from other people besides patrons at present? If 'yes', who are these people? How about ten years ago?

2c. dependence on low pay-off or inferior jobs/ options
(i) At the present time, do you engage in food gathering? fuel gathering? fodder gathering? How about ten years ago?
(ii) At present, do you have any household members engaging in part-time petty jobs (helping in small chores in exchange for a meal as a wage)? Ten years ago?
(iii) At present, do you have members seasonally out-migrating for a job? Ten years ago?
(iv) At present, how good do you think your schools are? Ten years ago?
(v) At present, do you withdraw their children from school during the crop season to help in the farm, to earn, etc. Ten years ago?

2d. mobility and liquidity position
(i) Do you sell 80 per cent of your marketed produce during the post-harvest period at the present time? Ten years ago?
(ii) Do you keep 25 per cent of their surplus for sale up to the next rain at the present time? Ten years ago?
(iii) Do you purchase key provisions in bulk at the present time? Ten years ago?
(iv) Do you rely on day-to-day petty purchases of key provisions at the present time? Ten years ago?
(v) Do you make cash purchases during slack season at the present time? Ten years ago?
(vi) At present, do you possess ready cash up to 500 pesos or more at home during the slack season? Ten years ago?
(vii) Do you have household members who travel by paid transport more than twice a year to outside the province at the present time? Ten years ago?

2e. consumption patterns/practices
(i) At present, do you occasionally consume green vegetables? Ten years ago?
(ii) At present, do you use milk/milk products regularly? Ten years ago?
(iii) At present, do you consume sugar regularly? Ten years ago?
(iv) At present, do you consume rice everyday? Ten years ago?
(v) At present, do you have three meals a day during the harvest season? the slack season? Ten years ago?
(vi) At present, do the women and children in your household wear shoes regularly? Ten years ago?
(vii) At present, are the women in your household provided maternity feeding up to a month or more? Ten years ago?

2f. housing condition and acquisition of consumer durables
(i) Do your households have gates with doors at present? Ten years ago?
(ii) Do you have separate provision of stay for humans and animals at present? Ten years ago?
(iii) Do you have a private place (such as a bathroom) for women at present? Ten years ago?
(iv) How good do you think your water supply facilities for washing and drinking are? Ten years ago?
(v) How good do you think your access to electricity is? Ten years ago?

3. Do you think most of the people in your neighbourhood were poor five years ago (1992)? Why do you think so? [If they think most of the people were poor, probe: Why is this?]

4. Do you think most of the people in your neighbourhood are poor at present (1997)? Why do you think so? [If they think most of the people are poor, probe: Why is this?]

5. Do you think most of the people in your neighbourhood will be poor five years from now (2002)? What is your basis for saying so?

B. FERTILITY ISSUE [**References**: Caldwell et al. (1988a and 1988b); NSO (1994b); Dasgupta (1995); and Chambers (1995)]

1. What are the advantages and disadvantages of married couples discussing the number of children they should have?

2. What are the advantages and disadvantages of married couples agreeing on the number of children they should have?

3. What are the advantages and disadvantages of parents or parents-in-law influencing the couple's decision as to the number of children their married children should have?

4. What are the good and bad things about having a large family?

COSTS

4a. Do you find the cost in bringing up children increasing or decreasing? What costs in particular? Do you think these costs influence your married children's decision as to how many children they want?

BENEFITS

4b. Do your grandchildren help you in the farm or in your work? If yes, at what age do they start doing so? Do they produce simple marketable products?

4c. Do your grandchildren help their parents with other family chores? If 'yes', what specific chores?

Do they:
(a) cook food?
(b) wash dishes or clothes?
(c) iron clothes
(d) mind their siblings?
(e) go to the market?
(f) care for livestock?
(g) lead animals to pasture?
(h) fetch water?
(i) gather fuelwood?
(j) gather fodder?
(k) take messages to other people?

At what age do they start doing so?
How many hours a day do your grandchildren work for their parents? Do you think your married children need more children to help them in their work?

4d. Where do you live now: own home, children's home, or grandchildren's home?

4e. Do you receive financial or material support from your children/grandchildren?

5. What are the good and bad things about having sons? grandsons?

6. What are the good and bad things about having daughters? granddaughters?

C. ENVIRONMENTAL ISSUE

1. How is the countryside changing? Good or bad?

1a. What is its effect on you?
1b. What is its effect on your children?
1c. What is its effect on your grandchildren?

2. How have changes in the countryside affected the community?

3. Where is the nearest forest? What do you get out of it?

4. If the size of the nearest forest has declined in the last five years, do you find your married children need more labour (children?) to help with maintaining the household?

5. What are the advantages and disadvantages of protecting the forests? Who should protect the forests? If it cannot be protected, how serious do you think would the condition of the forests be in the next five years (2002)?

Annex 9
(Chapter 4)

Responses to Focus Group Discussion Questions

A. Poverty Issue

1. Who are the poor? Why do you think so?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: The poor are those without the three basic needs (food, clothing and shelter). They also think that the poor are those who do not want to work, are unemployed, or do not have stable jobs. Masbate village: The poor are those who have no money and no land.	Benguet village: The poor are those: without material assets; who cannot send their children to school; who cannot eat three meals a day; who have no jobs and land; and without friends. Masbate village: The poor are those who have no jobs, no money, and nothing to eat.	Benguet village: The poor are those who: do not work; are lazy; are uneducated; do not have many clothes; and have no houses. They do not think the people in this village are poor. Masbate village: The poor are those who: are unemployed; have no steady sources of income; and no material assets. They think people in this village are poor.	Benguet village: The poor are those who: have no jobs, house and lot; have little to eat; lack spiritual faith; have bad amenities such as roads and bridges; and whose mothers are separated from them. Masbate village: The poor are those who do not have money and work or cannot find work. They think their families are poor.	Benguet village: The poor are those who: have no jobs, money, beautiful clothes, shoes, delicious food; are lazy; and are orphans. Masbate village: Their parents and neighbours are poor because even if they see them working very hard they are still poor. They associate farming with being poor.	Benguet village: The poor are those who: have little money; have no job and no land; did not study; are illiterate; and are sickly. Masbate village: The poor are those who: do not work; gamble and drink wine; are sickly; and are dependent on their children.

2. Is the quality of your life and that of members of your family improving? If 'yes', why? If 'no', why?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: Some answered no because one said his father was richer than he is when they were about the same age while another said he has too many children. Other fathers said the quality of their lives did not change because the prices of basic commodities have gone up. The rest said yes. The spouses help each other and they accept different kinds of jobs.	Benguet village: All said yes. They can now provide their children with material things. They were able to diversify their sources of income by taking care of pigs, buying and selling of products and planting vegetables. They work hard and married couples help each other.	Benguet village: All said yes because family members work hard and help each other, children are sent to school; and now they have home appliances.	Benguet village: All answered yes because: their parents are not too hot-tempered any more; they are given proper education; the prices of vegetables are good; they are happy and they help each other; and some of their parents are working overseas.	Benguet village: (Not asked)	Benguet village: Some said no without explaining, while the rest answered yes because their children take care of them and sometimes they also work in the farm if they are still healthy.
Masbate village: Some said yes without explaining their answer, while the rest said no because they do not have stable sources of income.	Masbate village: Some said yes because they think they are healthy, while the rest said no because they did not notice any improvements in their standard of living.	Masbate village: Some said yes if the family members help each other and if they work hard. Others answered no because working in the farm is difficult and even if you work hard you earn very little.	Masbate village: Some said no because there is no gainful work and their parents are sickly, while the rest said yes because their family members have jobs and they help each other.	Masbate village: (Not asked)	Masbate village: Some said their lives have not improved and remained the same because prices of basic commodities have also increased, while the rest answered no because they rely on their children and their grandchildren.

2. Is the quality of your life and that of members of your family improving in terms of:

a. your annual (or monthly) household income?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: They think that their incomes are just enough as long as their wives help them.	Benguet village: All said yes. They diversify their sources of income by taking care of pigs, buying and selling of products and planting vegetables.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: Some said the same, while the rest answered yes. They help in light work in the farm such as weeding.
Masbate village: They think their sources of income are very unstable. Farms have been converted to farm ranch or pasture land. Fathers who have reached college look for sources of income other than farming. Some fathers rely on their children who work in food factories and houses in Manila.	Masbate village: They said it is either the same or decreasing. There is no alternative source of income other than farming. There is not much rain for the farm. Prices of commodities have also gone up.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: Some said yes, while the rest answered no because they do not have their own income. They rely on their children and their grandchildren. Since prices are increasing, the money given to them can only buy very little.

b. reliance on traditional patrons, landlords, and resourceful people for sustenance, employment, and income

(1) Do you have household members working as tenants or labourers at the present time? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: Some said yes, while the rest (seventy-eight per cent of the participants) said no. Ten years ago, they were all farm labourers.	Benguet village: Some are tenants or daily labourers. The rest answered no because they said they owned their lands and hired labourers. Ten years ago, household members were mostly labourers.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: Majority answered no. The rest are tenants or labourers. It was the same ten years ago.
Masbate village: Some fathers said they work on their own farms or as ranch caretakers, while the rest (eighty-two per cent) answered yes. The same situation ten years ago.	Masbate village: Majority said yes. Only a few of them have farms of their own. Same situation, ten years ago.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: Majority said yes. They worked as tenants and daily labourers. The same situation, ten years ago.

(2) Do you reside on patrons land/yard at present? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: All fathers answered no. The same situation ten years ago.	Benguet village: Majority answered no. Only twenty per cent of the participants said yes. The same situation ten years ago.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: Majority answered no. Only ten per cent said yes. Same situation, ten years ago.
Masbate village: Majority answered yes. They lived either in their patron's land or in public land. Only one said no. The same situation ten years ago.	Masbate village: Majority said yes. Only a few of them live in their own land. The same situation ten years ago.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: Majority said yes. The same situation, ten years ago.

(3) Do you borrow money or food grain from patrons during off-season at present? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: Except for one, all fathers answered no. The same situation ten years ago.	Benguet village: All answered no. The same situation ten years ago.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: Majority answered no. Ten per cent said yes. The amount borrowed is used to buy water buffalos and farm inputs. Same situation, ten years ago.
Masbate village: Sometimes they do but most of the time they get embarrassed. The same situation ten years ago.	Masbate village: Some said yes. Others said no because the patrons live in the town capital which is too far away from them. The same situation ten years ago.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: All grandparents said no. The same situation, ten years ago.

(4) Do you market farm produce only through your patrons at present? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: All said no. They sell their products directly to wholesalers in the city market. The same situation ten years ago.	Benguet village: Majority said no. Twenty one per cent of the participants said yes. Sometimes they said their farm produce are just enough for their consumption. The same situation ten years ago.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: All answered no. Same situation, ten years ago.
Masbate village: All answered no. They sell their farm products themselves. They said, however, that most of the time their produce is just enough for their consumption. One father said that when he is busy he would ask a local middleman to buy his produce. The same situation ten years ago.	Masbate village: All answered no. They sell their farm products themselves but most of the time there is nothing to sell. The same situation ten years ago.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: All said no. The same situation, ten years ago.

(5) Do you take loans from other people besides patrons at present? If 'yes', who are these people? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: Majority (sixty-seven per cent of the participants) said no. The rest said they borrow from suppliers of farm inputs. One group said that in the late 80s, non-governmental organisations lent money to farmers but now they are not in the area any more. The same situation ten years ago.	Benguet village: Except for one, all said yes. They usually borrow from: their relatives, neighbours, farm input suppliers, or the Government Service Insurance System (GSIS) for the government employees. The same situation ten years ago.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: Half of the participants answered yes. They borrowed from neighbours and savings and loan associations. The rest said no. Same situation, ten years ago.
Masbate village: Eighty per cent of the participants said yes. They borrowed from the village captain, rich neighbours, siblings, friends, and poor people like them. The rest could not borrow because there are no lenders. The same situation ten years ago.	Masbate village: Eighty-eight per cent answered yes. Most of them borrow from their relatives. One mother (a teacher) borrows from the GSIS and the Pagibig Fund. The same situation ten years ago.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: All said no. Majority of them receive dole-outs from their grandchildren rather than loans. The same situation, ten years ago.

c. Dependence on low pay-off or inferior jobs/options

(1) At the present time, do you engage in food gathering? fuel gathering? fodder gathering? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: Majority (eighty per cent of the participants) said sometimes they engaged in the gathering of food and fuel wood. Most of the time they buy from the market. The same situation ten years ago.	Benguet village: Majority (eighty per cent of the participants) said yes but occasionally only. When they were still single, their fathers engaged in the gathering of food, fuel and fodder. Now, the children help their husbands in these activities.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: Majority (seventy-five per cent of the participants) said yes. The same situation, ten years ago.
Masbate village: Ninety-six per cent of the participants said yes. They gather fuel wood but they said they replace it by planting trees. The same situation ten years ago.	Masbate village: All answered yes. They gather food, fuel, and fodder. Others combine food that are gathered with those purchased. For fodder, they use local indigenous feeds more than commercial feeds for their pigs because the latter is more expensive. The situation was the same ten years ago.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: All answered yes. The same situation, ten years ago.

(2) At the present time, do you have any household members engaging in part-time petty jobs (helping in small chores in exchange for a meal as a wage)? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: All answered no. The same situation ten years ago.	Benguet village: Sixty-seven per cent of the participants answered no. For the rest of the participants, however, they accepted palay (unmilled rice) or vegetables rather than meals in exchange for their labour. The same situation was observed ten years ago.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: Majority (eighty-three per cent of the participants) said no. The same situation, ten years ago.
Masbate village: Except for one, all of the participants said no. The same situation ten years ago.	Masbate village: All answered no. They receive cash only. The situation was the same ten years ago.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: All answered no. The same situation, ten years ago.

(3) At the present time, do you have any household members seasonally out-migrating for a job? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: Instead of seasonal migration, twenty per cent of the participants said their relatives worked overseas. They said that the number of overseas contract workers from the village increased in the last ten years.	Benguet village: Instead of seasonal migration, about thirty -three per cent of the participants said they have family members who worked overseas. There were few family members who went abroad to work ten years ago.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: Rather than seasonal migration, sixty-two per cent of the participants said they have family members who worked overseas. They also mentioned that less family members worked overseas ten years ago.
Masbate village: Instead of seasonal migration, about sixty per cent of the participants said their siblings and children go to MetroManila to work for more than a year. The same situation was observed ten years ago.	Masbate village: Instead of seasonal migration, eighty per cent of the participants said they have children who are working in Metropolitan Manila as domestic helpers or in factories. The situation was the same ten years ago.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: Sixty per cent of the participants had their grandchildren working in Metropolitan Manila as domestic helpers. The same scenario was observed ten years ago.

(4) At present, how good do you think your schools are? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: All of them think their schools are good based on observing their children. They said that many of the students who finished high school in the village are able to get a college degree and work elsewhere. They also think the teachers are all hardworking. Some of the fathers participate in Parents-Teachers Association so this enables them to monitor the activities of the school. The situation was the same ten years ago.	Benguet village: The teaching is good but the quality of learning has to be improved. Some of them have children who have college degrees. They noted, however, that college graduates do not return to the village because there are few employment opportunities in the area. The situation was the same ten years ago.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: All said the schools are better now because the children learn more. They do not take drugs not like in the cities. Their children who graduate with a college degree are employed with a private firm. More vocational skills are taught now such as handicrafts, gardening and carpentry.

Continuation - (4) At present, how good do you think your schools are? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Masbate village: All said the schools are good based on their observation of their children. They said their basis for having said so was that some kids have reached college. They noticed, however, that their children get tired because they live far from the school. Some said the facilities are old and the school supplies are tattered already. The same situation was observed ten years ago.	Masbate village: Majority said the schools in the village are good because their children could already read and talk and they learn much. The teachers are kind. One mother disagrees with her group mates. She said the school is poor because the facilities are incomplete and they only have a primary school (Grades one to four). The situation was the same ten years ago.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: All said the school is good based on their observation of their grandchildren. The same situation was observed ten years ago.

(5) At present, do you withdraw your children from school during the crop season to help in the farm to earn, etc. ? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: Majority (seventy per cent of the participants) said occasionally only. The situation was the same ten years ago.	Benguet village: All said no. Some mothers requested their children to go home immediately after school to help at home. They said that in their case when they were young their parents wanted them to withdraw from school to work at home and in the farm. Because they wanted to continue studying, they woke up early and helped with household chores and then they went to the school afterwards. For others, they were asked by their parents to help them in the farm during weekends. One mother had to stop studying because her family was poor.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: Almost all said their grandchildren continued their studies and helped only during vacation time. Some of their own children volunteered to stop studying and concentrate on working in the farm. In their time, they were often absent from school because they had to work in the uplands. One participant said her mother told her that instead of going to school she had to work in the farm. Because they lacked food she, together with her siblings, had to plant rice and sweet potato. Other participants said they had to discontinue their studies because they were either too poor or the war caused them to stop.

Continuation - (5) At present, do you withdraw your children from school during the crop season to help in the farm to earn, etc. ? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Masbate village: Majority answered no because either the children are still small or they ask their children to help them when there are no classes or during weekends. One said yes but only when necessary. The same situation was observed ten years ago.	Masbate village: All said no. Their children help them when they do not have a class. However, one mother related that when they were younger they were told to stop studying. Another said her parents told her to study but she decided to get married early. Other mothers wanted to study but their parents were too poor to send them to school.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: All answered no. The same situation was observed ten years ago. In their case, most of them did not complete elementary school because of the war. After the war they got married instead of going back to school. Others reached the first grade only because they were too poor so they helped their parents in the farm.

d. Mobility and Liquidity Position

(1) At present, do you sell 80 per cent of your marketed produce during the post-harvest period at the present time? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: All the farmers said the palay (unmilled rice) they produce is only enough for their consumption. However, for vegetables yes. The situation was the same ten years ago.	Benguet village: All said most of the rice they harvest is just for consumption which is given priority. For vegetables, it is the other way around. They sell first and what is left they consumed. The situation was the same ten years ago.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: All said most of the farm produce is consumed rather than sold. The same situation was observed ten years ago.
Masbate village: All said their produce is mainly for their consumption because they harvest once a year only. The same situation was observed ten years ago.	Masbate village: All said their produce is only good for their consumption and sometimes it is not even enough for them.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: Half said their produce is just enough for their consumption while the other half said they had no farm produce at all. Same, ten years ago.

(2) Do you keep 25 per cent of your surplus for sale up to the next rain at the present time? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: All answered no. Vegetables are perishable so they are sold immediately. On the other hand, rice is for consumption and most of the time their harvest is just enough to feed the household members. The situation was the same ten years ago.	Benguet village: All said there is no surplus. The situation was the same ten years ago.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: All said most of the farm produce is consumed rather than sold so there is no surplus. The same situation was observed ten years ago.
Masbate village: All said there is no surplus. Same, ten years ago.	Masbate village: Majority (ninety per cent of the participants) said there is no surplus of unmilled rice. They even buy rice. Same, ten years ago.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: All answered no. Same, ten years ago.

(3) Do you purchase key provisions in bulk or do you rely on day-to-day purchases of key provisions at the present time? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: Half said they purchase key provisions by bulk because transportation is difficult while the other half rely on day-to-day purchases only. The situation was the same ten years ago.	Benguet village: More (sixty-two per cent of the participants) said they relied on day-to-day purchases only. The relatively well-off mothers said there is an advantage to buying by bulk because the price is discounted (for example, rice and salt). Hence, they buy provisions for a week to two weeks. The situation was the same ten years ago.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: Majority (seventy-five per cent of the participants) said that they bought items for daily needs only because there is not enough money. The same situation was observed ten years ago.
Masbate village: Majority said they rely on day-to-day purchases only. The rest (those with at least two years of college) buy by bulk when they have the money because they said they live far away from the market. Same, ten years ago.	Masbate village: Majority said they rely on day-to-day purchases from the local store based on what they could afford. The relatively well-off mothers go to the market to purchase their needs for one week because the town is far from the village. Same, ten years ago.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: Majority said day-to-day purchases. The better-off ones buy by bulk because they said the marketplace is far. Same, ten years ago.

(4) At present, do you make cash purchases during the slack season? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: Majority (eighty per cent of the participants) pay either cash or credit. If they have money, they pay cash. If somebody allows them to lend, they borrow. The situation was the same ten years ago.	Benguet village: Except for one, almost all said they paid in cash. For the teachers, they have their own cooperative. Those out of cash could get goods and every payday the amount they owe is deducted from their salaries. The cooperative was not there yet ten years ago. It was only established in 1992.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: Almost all said they often pay in cash but sometimes by credit. Ten years ago, they said mostly by credit.
Masbate village: Almost all said they paid in cash because all commodities are sold in cash. Same situation, ten years ago.	Masbate village: All answered yes. Same situation, ten years ago.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: All answered yes. Same, ten years ago.

(5) At present, do you possess ready cash up to 500 pesos or more at home during the slack season? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: Majority (eighty per cent of the participants) answered no. The rest who answered yes were the only also ones who admitted they have some savings in the bank. Ten years ago, everyone did not have the said amount.	Benguet village: Majority (seventy-nine per cent) of the participants) said yes. One group pointed out that after the earthquake of 1990 most of them had nothing in their pockets. The important lesson they got from that calamity is that they should always have some money for emergency purposes. Ten years ago, only a minority had 500 pesos in their pockets.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: Mixed answers. Half said no while the other half said yes because they are still able to work, or they receive pension (for retirees), honorarium from the village council (for village officials), or remittances from children or grandchildren overseas. Ten years ago, most of them did not have 500 pesos in their pockets.
Masbate village: Majority (ninety per cent of the participants) answered no. One father said only his wife knows because she keeps all the money. Same, ten years ago.	Masbate village: Majority (ninety per cent of the participants) said no. Some said they now have a crisis situation because life is difficult. Same, ten years ago.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: Majority (sixty per cent of the participants) answered no. Same, ten years ago.

(6) Do you have household members who travel by paid transport more than twice a year to outside the province at the present time? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: Half of the participants do and half don't. Ten years ago, very few people travelled outside the province.	Benguet village: Fifty-three per cent answered yes, particularly, they said, during vacation time (April to May). Ten years ago, not too much.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: About sixty per cent of the participants answered yes. They said the roads are better now and they are getting better every month. Most of them travel to Baguio City rather than outside the province though.
Masbate village: Majority (eighty per cent of the participants) answered no. One participant said his father and his siblings who are all engaged in fish trading regularly travel to Manila, Samar, and to Sibuyan Island. Same, ten years ago.	Masbate village: Majority (seventy per cent of the participants) answered no. They said most of their household members stayed in the village. Same, ten years ago.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: Eighty per cent of the participants said no. Only one participant, the village captain, leaves the village often to attend meetings or seminars outside the village. Same, ten years ago.

e. Consumption patterns/practices

(1) At present, do you occasionally consume green vegetables? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: All answered yes. same, ten years ago.	Benguet village: All answered yes. Same, ten years ago.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: All answered yes because vegetables are their product. Same, ten years ago.
Masbate village: Majority (eighty per cent of the participants) answered yes. Some said only during the rainy season. Same, ten years ago.	Masbate village: All answered yes. Same, ten years ago.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: All answered yes. Same, ten years ago.

(2) At present, do you use milk/milk products regularly? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: Majority (seventy per cent of the participants) answered yes. Same, ten years ago.	Benguet village: All answered yes. Twenty per cent of the participants said ten years ago, they could not afford to purchase milk/ milk products.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: Only thirty-five per cent answered yes. They said they do not have milk and milk products in their village. Same, ten years ago.
Masbate village: Majority (seventy-five per cent of the participants) answered no because they said they were poor. Same, ten years ago.	Masbate village: Half said yes and the other half no. Same, ten years ago.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: All answered no. Same, ten years ago.

(3) At present, do you consume sugar regularly? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: All said yes. Same, ten years ago.	Benguet village: All answered yes. Same ten years ago.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: All said yes. Some said ten years ago, not on a daily basis.
Masbate village: Majority said sometimes especially with coffee. Same, ten years ago.	Masbate village: All said yes but some said they used brown rather than white sugar.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: All answered yes. Same, ten years ago.

(4) At present, do you consume rice everyday? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: All said yes. Same, ten years ago.	Benguet village: All answered yes. Same ten years ago.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: All said yes. Same, ten years ago.
Masbate village: Majority (seventy-five per cent of the participants) said yes. Some said only during the rainy season. During the dry season because there is no water they eat tubers (for example, sweet potatoes) instead. Same, ten years ago.	Masbate village: All said yes. Same ten years ago.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: All answered yes. Same, ten years ago.

(5) At present, do you have three (3) meals a day during the harvest season? the slack season? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: All said yes. Same, ten years ago.	Benguet village: All answered yes. Same ten years ago.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: All said yes. They also have sweet potato, cassava, yam, and bananas. Same ten years ago.
Masbate village: Majority (seventy-five per cent of the participants) said yes. Some said that sometimes during the slack season twice a day only. Same, ten years ago.	Masbate village: Majority (seventy per cent of the participants) answered yes. One participant said that during the slack season instead of a full meal, they eat porridge. Same ten years ago.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: All answered yes. Same, ten years ago.

(6) At present, do the women and children in your household wear shoes regularly? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: All said yes. Shoes are used when they go to the city and slippers are used at home. Same, ten years ago.	Benguet village: All answered yes. Same ten years ago. When they were younger, they either walked barefoot or wore slippers to school.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: All answered yes. They said the roads are still bad so you are forced to wear something on your feet. Same ten years ago. When they were younger (about five to six decades ago), they had no slippers and shoes. They went to the elementary school without slippers, shoes, or underwear.
Masbate village: Majority said no. They use slippers and sometimes none. Only those who go to school wear shoes or slippers. Same, ten years ago.	Masbate village: Majority (eighty-four per cent of the participants) answered no. Only those who go to school wear shoes. However, most of their children wear slippers to school. Same ten years ago.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: All answered yes. Same, ten years ago.

(7) At present, are the women in your household provided maternity feeding up to a month or more? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: All said yes. Same, ten years ago.	Benguet village: All answered yes. They and their children are healthy. One mother said her children are healthy but she is sickly. Same ten years ago.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: All answered yes. They have a midwife who resides in the village whom they may consult. Same ten years ago.
Masbate village: Majority (eighty per cent of the participants) said yes. Some said that their wives' maternity feeding is not enough because lives are difficult especially during the dry season. Same, ten years ago.	Masbate village: Majority (eighty per cent of the participants) answered yes. Some said it was not sufficient because sources of income are hard to find so they eat less food. Same ten years ago.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: All answered yes. They said their children are healthy. Same, ten years ago.

f. Housing Condition and Acquisition of Consumer Durables

(1) Do your households have gates with doors at present? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: Majority (sixty per cent) answered yes. One participant said he does not need a gate because there is nothing worth stealing in his house. Ten years ago, there were no fences at all.	Benguet village: Majority (eighty-four per cent) said no. They said that anyway they all have dogs as a precaution. Same ten years ago.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: All answered no. They had fences to avoid stray animals from destroying their backyard garden. Same ten years ago.
Masbate village: All said no. Same, ten years ago.	Masbate village: All said no. Anyway, they have bamboo fences to protect their backyard plants. Ten years ago, there were no bamboo fences at all.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: All answered no. However, they had fences. Ten years ago, there were no fences.

(2) Do you have separate provision of stay for humans and animals at present? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: All answered yes. Same, ten years ago.	Benguet village: All answered yes. Same, ten years ago.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: All answered no. They said that no matter how poor people are the houses of pigs and chickens are separate from the people. Same ten years ago.
Masbate village: All answered yes. However, some of them allow their animals to roam around because they have no pens. Same, ten years ago.	Masbate village: All answered yes. However, animals roam around their backyard and their neighbours' backyard. Same, ten years ago.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: All answered yes. Two participants said they have a chicken pen which is situated below their kitchen. They allow the chickens to roam around in the morning and return to their pens in the evening. They said they do not take care of many chickens because they easily get lost. So they only have a pair. Same, ten years ago.

(3) Do you have a private place (such as a bathroom) for women at present? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: All answered yes. Same, ten years ago.	Benguet village: All answered yes. Ten years ago most of them had no bathrooms. They bathed outside or they used the river.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: All answered yes. Ten years ago, they used the river and the brooks. The upper part of the river is for men and the lower part is for women.
Masbate village: Majority (seventy-three per cent of the participants) said no. Same, ten years ago.	Masbate village: Majority (sixty-five per cent of the participants) answered no. The children use the public well to take a bath. Same, ten years ago. When they were younger (two to three decades ago) they used the river to take a bath.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: All answered no. They take a bath near the well. Same, ten years ago.

(4) How good do you think your water supply facilities for washing and drinking are? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: All the participants think their facilities are good but they did not elaborate. Same, ten years ago.	Benguet village: They think their water which comes from the mountain springs is safe for drinking. They said that the water they used for washing is not so clear during the rainy season. Also, during summer, they have less water. Ten years ago, they said they had more water.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: They think that their water supply facilities are good. Drinking water is good because they rely on spring water from the mountains. However, they said water for washing is dirtier now than ten years ago. They mentioned the existence of piggeries in the nearby village (Sablan) which caused their rivers to become polluted. Also, during the rainy season, they said water for washing has a brownish colour.
Masbate village: Most of them think that the water they get from the public well is clean. They said it is not chlorinated. A few of them boil their water to kill the germs. Same situation, ten years ago.	Masbate village: They think their water is clean and there is no need to boil it. Same, ten years ago.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: They think that the water they get from the public well is clean. They said that the well has been there a long time ago. Same opinion, ten years ago.

(5) How good do you think your access to electricity is? How about ten years ago?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: Ninety per cent of the participants said it is good. Ten years ago, most of them had no electricity.	Benguet village: Almost all had electricity (eighty-nine per cent of the participants). They said they have no problems with access.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: Ninety-five per cent of the participants had electricity in their homes. They said, however, that sometimes they have brownouts. Those who are far from the village centre use kerosene. There are hydro power plants in the village but they said that households which were far from the centre do not have electricity. Most of the households started to have electricity five years ago.
Masbate village: All have no electricity in their homes. Same, ten years ago.	Masbate village: All had no electricity in their homes. Same, ten years ago.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: They said they do not have money to access the electricity from the posts which were set up in June 1997 only. Some are still saving 4,100 pesos (approximately US $102) to have electricity in their homes.

3. Do you think most of the people who were working on the same job as you did five years ago (1992) were poor*? Why do you think so?* For mothers, the underlined phrase was changed to 'women in your neighbourhood' while for eldest never married sons, eldest never married daughters, and grandparents the underlined phrase was changed to 'people in your neighbourhood'.

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: Ninety per cent of the participants said no. Some said just the average. One father said people have vegetable gardens so they were not poor. Others did not elaborate.	Benguet village: Majority (sixty-three per cent of the participants) said no because women had jobs or vegetable gardens of their own. Wives helped their husbands. Some were even able to stock food. They said those who did not work hard were poor.	Benguet village: Majority said no because they were able to meet their needs through their harvest. Those who answered yes felt that the 1990 earthquake made most people poor. However, they said that people have gradually recovered from the calamity.	Benguet village: Majority (sixty per cent of the participants) said yes because: their neighbours were lazy, they borrowed rice from them and they are unable to cope with day-to-day living. Others think most of their neighbours were just average.	Benguet village: (Not asked)	Benguet village: Majority (seventy-five per cent of the participants) answered no. They think that people in their neighbourhood are just average. Their food is enough and their needs are provided. Others who thought their neighbours were poor could not elaborate.

Continuation - (3) Do you think most of the people who were working on the same job as you did five years ago (1992) were poor*?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Masbate village: All said yes. Some said because they are fond of gambling, drinking liquor, and partying.	Masbate village: Ninety-five per cent of the participants said that women are poor because: they earned very little income; there were no sources of income; or sources of income were unstable. Same, ten years ago.	Masbate village: All answered yes because life was difficult. Some groups were optimistic about the future while the others could not elaborate.	Masbate village: All answered yes because most of their neighbours did not work. Others could not elaborate on their answers.	Masbate village: (Not asked)	Masbate village: All answered yes. They said that life was hard five years ago. The people were given a chance to improve their lives with programs such as the government's agrarian reform scheme. However, the beneficiaries from their village did not pay their annual dues and so they allowed their lands to be re-possessed by the Development Bank of the Philippines. These lands were then purchased by private entrepreneurs and converted to pasture lands. Now, there are very few rice farms left in the village.

Continuation - 3. Do you think most of the people who were working on the same job as you did five years ago (1992) were poor*? Why do you think so?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: Ninety per cent of the participants said no. Some said just the average. One father said people have vegetable gardens so they were not poor. Others did not elaborate.	Benguet village: Majority (sixty-three per cent of the participants) said no because women had jobs or vegetable gardens of their own. Wives helped their husbands. Some were even able to stock food. They said those who did not work hard were poor.	Benguet village: Majority said no because they were able to meet their needs through their harvest. Those who answered yes felt that the 1990 earthquake made most people poor. However, they said that people have gradually recovered from the calamity.	Benguet village: Majority (sixty per cent of the participants) said yes because: their neighbours were lazy, they borrowed rice from them, and they are unable to cope with day-to-day living. Others think most of their neighbours were just on the average.	Benguet village: (Not asked)	Benguet village: Majority (seventy-five per cent of the participants) answered no. They think that people in their neighbourhood are just the average. Their food is enough and their needs are provided. Others who thought their neighbours were poor could not elaborate.

* For mothers, the underlined phrase was changed to 'women in your neighbourhood' while for eldest never married sons, eldest never married daughters and grandparents, the underlined phrase was changed to 'people in your neighbourhood'.

4. Do you think most of the people who are working on the same occupation as you do at present (1997) are poor*? Please explain your answer.

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Masbate village: All said yes. Some said because there are few rice or corn farms left. Others rely on their grown-up children in Manila to help them. Others did not elaborate.	Masbate village: All said yes. They said that incomes are low and life is becoming difficult because there are no sources of income. Hence, there is no money to spend for their daily needs. They do not have gainful work and their husbands look for odd jobs.	Masbate village: All answered yes. They said there are few lands available for cultivation.	Masbate village: All answered yes because people still cannot find gainful work.	Masbate village: All said yes because: they are hard up in life; their work is very hard; their incomes are low; and they do not have any money.	Masbate village: All answered yes because it is difficult to earn money. Also, people often drink alcoholic stuff as well as gamble.

* For mothers, the underlined phrase was changed to 'women in your neighbourhood' while for eldest never married sons, eldest never married daughters and grandparents the underlined phrase was changed to 'people in your neighbourhood'.

5. Do you think you will be poor five years from now (2002)*? Please explain your answer.

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: Ninety per cent of the participants said no. They think that if they help each other or the government helps them they will prosper. The father who answered in the affirmative was pessimistic about his future because he said he had no land of his own, prices of vegetables were low, and he had ten children to feed.	Benguet village: All said no. They expect further improvement because women are hardworking. However, some of them expect the poor to become poorer because of the increase in oil prices.	Benguet village: All said they expected that their lives will improve because people around them either work hard or persevere to get jobs.	Benguet village: Eighty per cent said no because people work and help each other in the farm. Those who thought otherwise said that many of the young people drop out of school because it is too far and it is difficult to walk that far.	Benguet village: (Not asked)	Benguet village: All said no because the government is helping the poor and they expect infrastructure projects in their village such as better roads. Also, since their grandchildren are studying now, they expect them to find good jobs when they graduate.
Masbate village: They said they will not be poor five years from now based on the following conditions: they work hard and they remove their bad habits; farming becomes productive; and if their children finish their studies.	Masbate village: Sixty per cent said yes because the work in the village is hard and there will be more people five years from now. Those who think otherwise said if people will strive to improve themselves they will not be poor any more. Also, the situation is expected to get better when the children finish their studies, find good jobs, and help their parents.	Masbate village: All expected that people in their neighbourhood will not be poor if they help each other in the village.	Masbate village: Majority said it depends on the people. They said those who will be better-off are those who have jobs and those who work hard. Those who have no jobs will not be able to eat.	Masbate village: (Not asked)	Masbate village: Sixty per cent said yes because old people like them rely on their children and grandchildren for their needs. Some of them think it is up to the people to change their ways. Also, they should work hard and not rely on dole-outs from the government.

* For mothers, the underlined phrase was changed to 'women in your neighbourhood' while for eldest never married sons, eldest never married daughters and grandparents the underlined phrase was changed to 'people in your neighbourhood'.

6. How do you get on with day-to-day living?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: People in the village help each other especially for wedding and funeral expenses. They join community activities. They work hard and accept different kinds of jobs. Their food is fresh because they plant vegetables. Some of the people buy canned goods. Some rely on the forests primarily for their fuel wood.	Benguet village: They said that most people do not rely on the forests for fuel wood. Most of them use liquefied petroleum gas especially during the rainy season. They noticed changes in eating and food preparation. There is now more variety in the food that they eat. Before, some of them ate rice with salt. Now, some buy canned goods and instant meals because the working married women are busy. Also before, most of the people only boiled their vegetables. Now, they use spices and oil for cooking. Also, some share in the rearing of livestock. One household takes care of the mother livestock and the offspring are sold to neighbours for rearing. There are mutual support networks especially during emergencies.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)

Continuation...

	Some of the rich help the poor by asking them to work in their farms or launder their clothes. Sometimes the rich cheat the poor by not paying for their labour or they pay below the minimum wage. The poor, however, do not get organised. Self-respect is important to the poor but the level is not high. Regarding financial problems, they seek the help of neighbours, siblings and those who are relatively well-off if they cannot handle it. The people stick together and evaluate what they have to do.				
Masbate village: They said that people help each other in the farm especially in heavy tasks. They help each other on an individual basis because they do not have any organisations. There are no changes in the food that they eat and its preparation.	Masbate village: All of them gather fuel wood for cooking. Most of them said their eating habits and preparation of food have not changed at all. They do not eat canned food. Sometimes, they share rearing of livestock. The people help each other.	Masbate village: All expected that people in their neighbourhood will not be poor if they help each other in the village.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)

7. What do you want most in life?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: They wanted most to have their children finish their studies either for them to have a good job or to help their parents in the future. Some fathers want financial support from the government to educate their children, buy their own farm land, or to start a small business.	Benguet village: They wanted most to have their children grow up well-educated. Majority want to have a healthy and happy family. Other mothers wanted most to help other people such as those who are in need.	Benguet village: They want to finish their studies and be able to have a good job. Others want a small business. Those who are currently studying want to become professionals (for example, teachers and doctors) some day. Those who are working in the farm wanted to get married and be happy.	Benguet village: They want to finish their studies so that they could look for a good job or start their own business. They mentioned a variety of occupations such as: scientist, nurse, teacher, doctor, businesswoman and a movie reporter.	Benguet village: They want most their family. Some want to: help other people; finish their studies; and become professionals. A group of five children said they want food most.	Benguet village: (Not asked)
Masbate village: They want most to improve their lives. Most of the fathers do not aspire to become rich. They said that as long as they meet their daily needs then that is all they want. They want to work and not become poor. Twenty per cent want their children to finish their studies while ten per cent want to have a water buffalo.	Masbate village: All of them want to make sure that their family survives by having at least three meals a day. Some of them want to earn income. Forty per cent of the mothers want their children to finish their studies.	Masbate village: They want to finish their studies and find a good job. Some want to help their parents in the farm as well as other members of the community.	Masbate village: They want to continue or finish their studies and find a good job. They either wanted to be a teacher or a nurse.	Masbate village: They want to become farmers, fishermen, nurses, teachers, police officers, or village officials. Twenty per cent said they want to finish their studies. One ten-year old child wanted most to learn how to read.	Masbate village: (Not asked)

8. Do you participate in organisations? If 'yes', what type of organisations did you join in? did you benefit from the services these organisations render? If 'yes', what benefits did you get? If 'no', why? For mothers, they were also asked, if they joined women's groups or groups for women's concerns as well as the benefits they receive, if any.

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
All the fathers participate in organisations such as farmers organisations, religious groups and the school association. Benefits include members helping each other and provision of seed capital and animals.	Benguet village: All participate in various types of organisations. Benefits include the provision of seed capital, animals, as well as school supplies at the start of the school year. Women's clubs were organised by the mothers in 1994 in Sitio Asin and in July 1996 in Sitio Hydro 3. However, both clubs are inactive because the mothers are busy. They intend to revive them in the summer time. Also, some mothers are Barangay Health Workers (or BHWs). BHWs are given free hospitalisation and a college scholarship for one dependent.	Benguet village: Fifty per cent of the participants said there are farmers and school organisations in the village but they do not join because they have to work in the farm. The rest said they participate in youth organisations and school-based groups. Benefits of joining these groups include loans with minimal interest, training, and group camaraderie.	Benguet village: Fifty per cent said they join school-based and youth organisations. They learn from the activities of the organisation such as organising games for the town feast. The rest said they do not join mainly because they have to work in the farm or in the house.	Benguet village: (Not asked)	Benguet village: (Not asked)

Continuation...

Masbate village: Majority of the fathers do not have any organisations because there are none or if there were, they said they were not aware of it. Thirteen per cent of the participants said they are with the agrarian reform beneficiaries' association. One father said that much as he wanted to join said association he could not join because he does not have a water buffalo. Another father said that he is the president of the village agricultural and fisheries council. The council was set up in June 1997 only. Since agricultural briefings in the municipal office of the Department of agriculture were always postponed, he said he could not share anything with his one hundred members. Another father is the secretary of the local village council.	Another mother related that in 1994, Catholic groups started a ten-year project in the area following the Grameen Bank approach. She said that a 30,000 peso (about 857 US dollars) seed capital was established through the donation of Australian Catholics. Recipients were chosen from Catholic women based on the recommendation of the local Catholic priest. A beneficiary is given a capital of less than 1,000 pesos (approximately 28 US dollars) to start a small business. The capital should be returned after 3 months. Masbate village: All mothers said they do not participate in organisations because there are no organisations in the village except for the local council.	Masbate village: Eighty-one per cent of the participants do not join organisations even if some of them want to because they are busy working in the farm. The rest are members of the local youth organisation which undertakes community cleanliness and beautification projects.	Masbate village: All do not participate because they are busy with school and housework. Some said they have not reached the minimum age for joining these organisations (that is, fifteen years of age). Some were not aware of the existence of such organisations.	Masbate village: (Not asked)	Masbate village: (Not asked)

9. Are there credit facilities available in your area? If 'yes', what are these facilities? Did you secure a loan from these sources? If 'yes', did you encounter any problems in borrowing and paying the interest (if any)? What were these problems? If 'no', why did you not secure a loan from these sources? Where did you borrow instead?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: Thirty per cent of the participants have availed of loans from formal credit facilities. Some fathers said if there are credit sources they will take advantage of it. They said credit is not extended to them because they do not have any collateral. A group of fathers said that the farmers' organisation lends some money but with interest. They have not experienced borrowing from formal credit sources because they do not have a sure source of repaying the loan. Instead, they borrow from suppliers of farm inputs, landowners, or from their relatives. Those who were able to secure a loan from the Land Bank of the Philippines said that it is easy to borrow but hard to pay even if the interest is low.	Benguet village: Fifty per cent of the participants have availed of credit facilities particularly from the Government Service Insurance System, the Social Security System, the Catholic group and the Department of Social Welfare & Development. They did not encounter any problems with borrowing and paying the principal and interest. While the credit facility of the Land Bank of the Philippines is existing, they did not avail of their loans because they find that the interest rates are high and they are not sure about the collateral. Hence, some borrowed from persons rather than institutions.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)

Continuation...

Masbate village: All said they have never secured a loan from formal credit sources because there are no such facilities in the area.	Masbate village: Ninety-five per cent of the participants said that they did not borrow because there are no credit facilities available. Hence, they relied on themselves or their neighbours. One mother, a school teacher, said she borrowed from the Government Service Insurance System and the Pagibig Fund. She said she did not encounter any problems. One group related that before they used to have a credit cooperative where they could borrow goods and pay the cost in the succeeding month. While they found the cooperative important to them, most of the members decided to pull out their contributions because they said they badly needed the money. Hence, the officers of the cooperative decided to dissolve the credit cooperative.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)

B. Fertility Issue

1. What are the advantages and disadvantages of the husband and wife discussing and agreeing on the number of children they should have? Why do you think so?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: They found it advantageous for married couples to discuss and agree on the number of children they should have so that they could plan their family and give all their children proper education.	Benguet village: They found it advantageous for the couple to plan the number of their children so that they could give the children proper education and food. Also, the parents and the children will not be hard up. The only disadvantage they see is when the couple starts to discuss the matter and do not agree.	Benguet village: They think their parents should discuss and agree on the number of children they should have. One eldest son said he thinks his parents do not discuss this issue because there are so many children in the family.	Benguet village: They said they should but did not elaborate on their answer.	Benguet village: (Not asked)	Benguet village: They said married couples should discuss and agree on the number of their children for the benefit of the family. Some said that if their children want to have many children it is up to them. Some of the grandparents said that now the couples discuss the number of children because of the government's family planning program. During their time, the number of children was not discussed by the couple. They had 'family planting' rather than 'family planning'.

Continuation - What are the advantages and disadvantages of the husband and wife discussing and agreeing on the number of children they should have? Why do you think so?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Masbate village: They found it advantageous for the married couple to plan the number of children they want to have because they can: plan the educational needs of their children, supply their children's other needs; and make sure their children are healthy. One father said it does not matter if they have many children and little to eat as long as they are happy and together in one household. Two fathers refused to answer the question because they are widowers.	Masbate village: They think it is good to discuss and agree on the number of children so that they could send their kids to school as well as take care of their needs.	Masbate village: They said the parents should discuss and agree on this issue so that in the future they would avoid having children in succession when they could not afford to do so.	Masbate village: They said they should so that in the future they will not have many children, to ensure the survival of family members, and for them to finish their studies.	Masbate village: (Not asked)	Masbate village: They said they should discuss and agree on the number of children they should have for them to be better able to give their children their basic needs and for them to have a good life (did not elaborate).

2. What are the advantages and disadvantages of parents or parents-in-law influencing the couples' decision as to the number of children their married children should have?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: Parents or parents-in-law should give advice but it is up to the couple to decide.	Benguet village: The advantages are when the couples cannot decide on their own and they want to know their parents' experiences or when the parents or parents-in-law assist in taking care of the children. Some find no advantage in allowing their parents or parents-in-law to influence the couples' decision.	Benguet village: All answered that the decision should be left to their parents. One eldest son said his grandparents wanted to tell their married children to limit the number of their children but hesitated to do so.	Benguet village: All answered no. They should give advice only when needed.	Benguet village: (Not asked)	Benguet village: Majority said the parents or parents-in-law may give their advice but it is up to the couple to decide. Some are afraid to give their advice for fear that they might be told that it is none of their business. A group of grandmothers agreed that elders should be consulted or should give their advice only when asked or consulted. Another group said it is good to advise the married children directly to limit the number of their children because their family is poor. During their time, they were not advised about family planning. Instead, they were told by their parents and parents-in-law to have many children.

Continuation - 2. What are the advantages and disadvantages of parents or parents-in-law influencing the couples' decision as to the number of children their married children should have?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Masbate village: Parents-or parents-in-law could give advise or give them suggestions as long as they are good but it is up to the couple to decide for themselves. Thirty-two per cent of the participants said that the advantage of allowing parents and parents-in-law to influence the couples' decision is that they could assist them in taking care of the children.	Masbate village: They think that parents and parents-in-law should not influence the couples' decision because their children are married already. They think that the couple may decide to consult the elders but decide for themselves.	Masbate village: All said the parents or parents-in-law may influence married couples in their decision to have children because the family should be united in everything. They think grandparents should guide their children and advise them so they could improve their lives.	Masbate village: Majority said no because their parents have minds of their own to decide on what is right for them. Some said yes but could not elaborate.	Masbate village: (Not asked)	Masbate village: All found no advantage in influencing their children's' decision on the number of children they should have. They said that their married children should decide for themselves.

3. What are the good and bad things about having a large family?*

3a. Do you find the cost in bringing up children increasing or decreasing**? What costs in particular? Do these cost influence your decision as to how many children you want? *Notes: For younger children, the question was changed to 'Is it good or bad to have many brothers and sisters, and why?' **For eldest never married sons and daughters, the underlined term was changed to 'you and your siblings'.

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: All answered yes particularly food and educational needs. They all agreed that these cost have influenced their decision as to the number of children they wanted. One father said that life is hard so a small family will do. Another said it was too late for him now because he already has ten children. Besides, he said, there were no artificial birth control methods available before.	Benguet village: All answered yes particularly food, education, clothing, housing and recreation. All mothers said they think of these costs in their decision to have a child. One mother said that having a large family is not bad if you can support the members. Otherwise, that would be bad.	Benguet village: They think it is good to have a large family because there will be more children who will help their parents in the farm. However, it is bad because there will be no money for needs such as school supplies. Also, children often disagree on the distribution of household work. One son said that parents only give their attention to the first three children. All said costs of raising a child are increasing particularly food, clothing, shelter and education. Most of them think these costs have influenced their parents' decision as to how many children they wanted.	Benguet village: All answered yes particularly food, clothing and education. Most of them think these costs have influenced their parents' decision as to the number of children they want.	Benguet village: Fifty per cent of the kids said it is good to have many brothers and sisters because there will be more children who shall work in the family; look for food and help in harvesting; and play with them. Those who said it was bad to have many siblings pointed out that: the family will spend much on food or the family will eat less; their parents will become tired; not all the children work; it would be difficult to raise many children; money will be wasted; and the house will not be peaceful.	Benguet village: (Not asked)

Continuation - 3a. Do you find the cost in bringing up children increasing or decreasing**? What costs in particular? Do these cost influence your decision as to how many children you want? *Note: For younger children, the question was changed to 'Is it good or bad to have many brothers and sisters, and why?' For eldest never married sons and daughters, the underlined term was changed to 'you and your siblings'.

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Masbate village: All answered yes particularly food, education and clothing. They said they think of these costs when deciding to have a child.	Masbate village: All answered yes particularly educational and clothing needs. They all said they consider these costs in their decision to have more children.	Masbate village: They said it is good if members help each other but bad if the family could not afford to do so. All said costs of raising a child have increased particularly food, clothing, education and other daily expenses. Most of them think these costs have influenced their parents' decision as to the number of children they want to have. One son said he does not think so because there are so many children in his family.	Masbate village: Sixty-seven per cent of the participants answered costs have increased particularly education and clothing. Most of them think that these costs have influenced their parents' decision as to the number of children they want.	Masbate village: Majority of the children said it is good to have many siblings because there will be more children who will help in the work at home and in the farm. Children who said it was bad to have many siblings said that if so they need to cook more food; the house would not be peaceful; and their father's income would not be enough for their needs.	Masbate village: (Not asked)

3b. Do your children help you in the farm or in your work? If 'yes' at what age do they start doing so?*

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: Ninety per cent of the participants answered yes. The work is basically planting rice and harvesting vegetables. The children started helping them in their work between five and fifteen years of age.	Benguet village: Except for three who either had no farm or whose children were still babies, all answered in the affirmative. Petty work in the garden such as collecting vegetables. The children started helping them between six and thirteen years of age.	Benguet village: Eighty-three per cent of the participants answered yes except for two who were told to concentrate on their studies. They started working between eight and fourteen years of age. The work is mainly farming.	Benguet village: All answered yes. They started working between the age of five and twelve years of age. Work includes farming (planting, weeding, harvesting) and weaving.	Benguet village: (Not asked)	Benguet village: Except for one whose grandson was still a baby, all answered yes. Between three and twelve years of age.
Masbate village: Eighty-two per cent of the participants said their children help them in the farm. The children started helping them between seven and fifteen years of age. The rest of the fathers said their children were still babies.	Masbate village: All answered yes. Their children started helping them between five and twelve years of age.	Masbate village: All answered yes. They started helping their parents between five and nine years of age.	Masbate village: All answered yes. Work included planting rice, weeding, and putting fertiliser). They started helping their parents between six and eight years of age.	Masbate village: (Not asked)	Masbate village: All answered no. The children help their parents instead of them. They started helping in the farm at the age of ten. Others said that their grandchildren live in the town capital. They are all studying and do not help in the farm at all.

* For eldest never married sons and daughters, the questions asked were 'Do you help in the farm or in your parents' work? If 'yes' at what age did you start doing so?'

3c. Do your children help you with other family chores? If 'yes' what specific chores?

Do they: (a) cook food; (b) wash dishes or clothes; (c) iron clothes; (d) mind their siblings; (e) go to the market; (f) care for livestock; (g) lead animals to pasture; (h) fetch water; (i) gather fuel wood; (j) gather fodder; (k) take messages to other people; or (l) help in chores other than the above-cited tasks?

At what age do they start doing so? How many hours a day do your children work for you? Do you need more children to help you in your work?

Note: For elder never married sons and daughters, the underlined phrase was modified to 'you help your parents' while for grandparents 'your grandchildren help you'. For younger children, only tasks (b) wash dishes only; (h); (i); (j);and (k) were asked of them.

Continuation...

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: Except for one whose child is still a baby, all answered yes to all the tasks. Their children started to help them when they were between six and ten years old. The time spent on household chores depends on the particular task that the children are working on. On the average, about thirty minutes. Fathers said they do not need more children to help them in their work.	Benguet village: Apart from three mothers whose children were still babies, all answered yes to all the tasks except for: caring for livestock, leading animals to pasture, and gathering fodder - only sixty seven per cent of the participants said yes; going to the market, fetching water and collecting fuel wood - only sixty per cent of the participants said yes; and delivering messages to other people - forty-eight per cent of the participants said yes. Between three and eight years old. It depends on the work. An average of thirty minutes to two hours a day.	Benguet village: All answered yes to all the tasks except for: delivering messages to other people - seventy-five per cent of the participants said yes; and ironing clothes and going to the market - only fifty per cent of the participants said yes. Their children started helping them between six and eight years of age. On the average, they help from 20 minutes to 3 hours a day. Except for three participants, all said they do not need more siblings to help them in their work.	Benguet village: All answered yes to all the tasks except for: ironing clothes, going to the market, collecting fuel wood, and delivering messages to other people - only a majority said yes; and caring for livestock, leading animals to pasture, as well as gathering fodder - between fifty and sixty per cent of the participants said yes. In addition to the above tasks, daughters also clean the house. Between five and ten years old. One daughter said when her mother died she started managing their household. Another daughter said that in her case when her mother left for Hong Kong she took over since she was the eldest child.	Benguet village: All answered yes to all the tasks asked of them except for collecting fuel wood and gathering fodder - sixty per cent of the participants said yes. In addition to the above tasks, younger children also sweep and scrub the floor as well as wipe the windows. Between three and ten years of age.	Benguet village: All answered yes to all the tasks except for: washing and ironing clothes, going to the market, and gathering fodder - seventy-five per cent of the participants said yes. They said children start washing dishes when they are five or six years of age and clothes at the age of ten. Between three and four years of age. Their grandchildren work between a few minutes to four hours a day. One grandmother said that when her grandchild stopped studying, she helped her in the household for an average of four hours a day. When they were still children, they worked on household chores for a minimum of four hours a day and sometimes the whole day.

(Continuation...)

Masbate village: Except for two fathers whose children were still babies, all answered yes to all the tasks. The children started working at home between five and eight years old. The number of hours spent by their children on household chores depends on the type of task. They think that they do not need more children to help them in their work.	Masbate village: Apart from one whose child was still a baby, all answered yes to all the tasks except for: washing and ironing clothes and leading animals to pasture - eighty per cent of the participants said yes. It depends on the task. Their children started helping them between five and six years old. The children help them between five minutes to two hours a day.	Masbate village: All answered yes to all the tasks except for going to the market - seventy-three per cent of the participants said yes. Between five and nine years old. Half an hour to three hours a day. For some participants, before they go to school. Majority answered they think the number of their siblings are enough.	She was only seven years old then. Daughters spent between thirty minutes to half a day on household chores. All of them said they do not need more siblings to help them in their work. Masbate village: All answered yes to all the tasks. In addition to the said tasks, they also clean the house and the backyard. Between five and eight years old. It depends on the task. Sometimes an hour and sometimes half a day. All of them think they do not need more siblings to help them in their work.	Masbate village: All answered yes to all the tasks asked of them. Between five and nine years of age.	Majority thinks that their married children do not need to have more children to help them in their work. One group of grandparents said that it is up to their married children to decide if they want to have more children or not. Masbate village: All answered yes to all the tasks. Between five and six years of age. Sometimes they work half a day and sometimes a few minutes three times a day. One group of grandparents said they do not think their married children need additional children. Another group of grandparents think it is up to their married children to decide on this.

3d. Do you go to school? Do you have time to do your homework? If 'yes', how many hours do you spent in a day doing your homework?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: All of them go to school. The small ones are in day care. They all said that they have time to do their school homework. They spent between fifteen minutes to two hours on their homework.	Benguet village: (Not asked)
Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: All of them go to school. The small ones are in day care. They said they have time to do their homework. They spend thirty minutes to three hours in doing their homework. They study in the evening and they use kerosene lamps.	Masbate village: (Not asked)

3e. Where do you live now: own home, children's home, or grandchildren's home?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: All lived in their own homes.	Benguet village: All lived in their own homes.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: Sixty per cent live in their own home. The rest live in their children's' home.
Masbate village: All lived in their own homes.	Masbate village: All lived in their own homes.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: Sixty per cent live in their children's home. The rest live in their own home.

3f. Do you receive financial or material support from your children/grandchildren?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: Some fathers receive financial and material support from their children once in a while especially from those abroad.	Benguet village: Some mothers receive financial and material support from their children on a voluntary basis.	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: (Not asked)	Benguet village: Majority of the grandparents receive financial or material support from their children or sometimes their grandchildren once in a while.
Masbate village: Majority receive financial and material support from their children who are in Manila.	Masbate village: Majority receive financial and material support from their children who are in Manila.	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: (Not asked)	Masbate village: Except for two who are relatively well-off, all grandparents receive financial or material support from either their children or grandchildren regularly especially to buy medicine.

4. What are the good and bad things about having sons? daughters?* For eldest never married sons and daughters, the questions asked were: Do you prefer to have male or female siblings? Why do you prefer male siblings? female siblings?' Grandparents were also asked the following questions: 'what are the good and bad things about having grandsons? granddaughters?'

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: They think sons are good if they: are of good character; are able to help in heavy tasks; and carry on your family name. The bad things about having sons are if they have gang mates and are undisciplined. Daughters help in household work. One participant said that his parents told him that daughters are more caring especially when you grow old. It is bad when they become victims of crimes or become unwed mothers. It is risky when daughters leave the house. It is bad also when your daughter flirts with men.	Benguet village: They think sons are good because they are strong and could carry heavy stuff such as rice. They help in the farm and collect fuel wood. It is bad when: they spend too much time with their friends; you have to spend when they get married; and they rebel against the parents. Daughters help in the house. It is easy to make them work at home and are less influenced by their peers. It is bad when they have a 'gang' and when they start to attract boys.	Benguet village: Male siblings are good because they are braver, stronger, and they help at home and in the farm. Bad when male siblings are lazy. Female siblings help clean the house, wash clothes, and they assist their mother in other household chores. Bad also when female siblings are lazy.	Benguet village: Male siblings help in the farm, fetch water and protect them from those who try to tease or hurt them. Female siblings help in the house. They are more industrious.	Benguet village: (Not asked)	Benguet village: Sons and grandsons help in the farm and carry heavy load. One grandparent said that with a grandson you will be rich. They said that what is bad is when the son or grandson grows old he will leave his parents. It is also bad when sons and grandsons take alcoholic drinks or drugs. Daughters help mothers in their work. They are more kind and patient. Granddaughters also work at home. One grandparent said her granddaughter, who works in Hong Kong, sends her 2,000 pesos (about US$50) a month.

Continuation - 4. What are the good and bad things about having sons? daughters?* For eldest never married sons and daughters, the questions asked were: Do you prefer to have male or female siblings? Why do you prefer male siblings? female siblings?' Grandparents were also asked the following questions: 'what are the good and bad things about having grandsons? granddaughters?'

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Masbate village: The sons help in the farm. It is bad when they are lazy. Daughters help their mothers at home. Most of their daughters work in Manila and send money to them. It is bad when they are lazy.	Masbate village: The sons help their fathers in the farm. It is bad when they gamble and take alcoholic drinks. Daughters help at home. Some of their daughters are in Manila working as domestic helpers or factory workers. It is bad when they marry early.	Masbate village: Male siblings are good for the farm and female siblings help at home. They sad that there is nothing bad about male or female siblings.	Masbate village: Male siblings carry heavy things while female siblings carry light things. Male siblings help in the farm and female siblings at home. They said it is bad when their male siblings spend so much time with their gang mates.	Masbate village: (Not asked)	Masbate village: Sons and grandsons help in the farm and in carrying things. They carry the family name. Their daughters and grand daughters help at home.

5. What are the good and bad things about your neighbour's having a large family?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: They said it is good if they are well-trained, easy to get along with, and are happy. It is bad because there will be more expenses and they are noisy.	Benguet village: They said it is good if they: can afford it and they can help you; have a large land for farming; and help each other. It is bad if: their budget is not enough and they depend on you; the children are undisciplined; the family members fight with each other; they take too much space; and are noisy.	Benguet village: It is good because they help you and you have many friends. It is bad because they are noisy, rowdy and you feel crowded.	Benguet village: It is good if they are happy and they help their parents and their neighbours. It is bad because they will find it difficult to support the needs of a large family (such as food and education) and to improve their lives.	Benguet village: (Not asked)	Benguet village: (Not asked)
Masbate village: Majority (sixty per cent of the participants) said that a small family consumes less and is not too rowdy. Others think that it is up to their neighbour if they want a large family.	Masbate village: Majority (sixty per cent of the participants) said it is up to their neighbour to decide on whether they want a large or a small family. Others prefer a small family for their neighbour so they could educate their children.	Masbate village: Majority (sixty per cent of the participants) said it is up to their neighbours to decide on whether to have a large family or not. One group said that a small family is less rowdy. One participant said he wants his neighbour to have a large family because that would be fun.	Masbate village: It is good when they are happy and bad when they are noisy and they fight each other. One out of the three groups said it is up to their neighbour to decide on this.	Masbate village: (Not asked)	Masbate village: (Not asked)

C. Environmental Issue

1. How is the countryside changing? Good or bad? What is its effect on you? on your parents? on your grandparents (if still living)? on your children? (as applicable) 0n your grandchildren (as applicable)?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: They think that there are less typhoons in their place. However, the mountains have been denuded, water is declining, and becoming polluted, and the air is not so fresh. They think that the climate has changed because they feel the heat more.	Benguet village: They think that there were several improvements in terms of roads, housing, tree planting and artesian well projects. People are busy. Lives they said are improving and incomes are increasing. However, they said what is bad is pollution. They said that most of the changes in the countryside has had a good effect on them. One group said that if before the roads were as good as its present condition, their grandparents might not have died early. Also, because of better roads, they would not have to rent a place in the city for their children any more. However, the pollution has a bad effect because they breathe bad air.	Benguet village: There are both good and bad changes. Other places are still clean while in other parts of the village the rivers are already dirty. There is too much slash-and-burn farming and the forests are slowly being denuded. One participant thinks there is a change in people's mentality which is more developmental in orientation. He thinks the village is slowly being urbanised. Majority said that the air is becoming hot and people could easily get sick. A participant said the increasing level of urbanisation is good for him because he thinks his college degree would be of use in his village.	Benguet village: It is good because the surroundings are clean, people plant rice, there are many houses and more people. It is bad because the forests are gradually being denuded, more people become intoxicated, the population as well as crime incidence are increasing, there are more diseases and there is less water. Majority said the increasing crime incidence causes fear. One group said that the air has become warmer now and that people cannot sleep well any more. They also said more people get sick because of the dirty air. One participant voiced her concern that her future children will not see what is still in the village.	Benguet village: (Not asked)	Benguet village: It is good because the community is cleaner, more peaceful and more people are happy. There are more projects and community associations now. People continue to work hard. More villagers travel overseas to work. What is bad is that trees are being cut and not re-planted immediately. One group thinks it is less peaceful now in the village. The participants said they are enjoying the improvements in the village. However, one group said the air is becoming warmer. Hence, they expect the next generation to encounter difficulties due to the change in the climate.

Continuation - 1. How is the countryside changing? Good or bad? What is its effect on you? on your parents? on your grandparents (if still living)? on your children? (as applicable) 0n your grandchildren (as applicable)?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Masbate village: Majority (seventy-three per cent of the participants) said there is not much change in the countryside. Some noticed there are more flowering plants around and the surroundings are more beautiful. However, they had better harvests before. They also said the climate is becoming hotter and there are more typhoons now. Cleaner surroundings and flowering plants reduce pollution. However, the hot temperature and the occurrence of natural calamities have lowered the volume of farm production.	Masbate village: They noticed that the countryside has not changed much except for more people, cleaner surroundings, more ornamental plants around, and some improvements in the roads, and the material of a few houses. The group said some of the village people have not changed at all because they continue to drink liquor and gamble. Majority think more beautiful surroundings are good for them.	Masbate village: Apart from the place becoming cleaner and having more people, houses and flowering plants and the establishment of a village plaza there have not been much change in the countryside. They think that the improvements in the village are good for them.	Masbate village: They noticed that there are more people, vehicles, and flowering plants. The surroundings are cleaner and now there is a plaza for village activities. They think that the improvements in the village are good for them but did not elaborate.	Masbate village: (Not asked)	Masbate village: They think that the countryside has changed physically but the mentality of the people has not. Some of the villagers continue to drink wine and gamble and this includes women. There is electricity now but the people are so poor they could not afford to have electricity in their houses. There is now a stage for village activities and a health centre. A day care centre for pre-school children is being built. There are more people and houses now and more people are studying. The changes have both good and bad effects on them.

2. Where is the nearest forest? What do you get out of it?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: Fuel wood, lumber, wild animals, fruits, flowers and water.	Benguet village: Water, fresh air, fruits, firewood and lumber.	Benguet village: Wood, fruits, wild animals and water.	Benguet village: food, wood, fruits, wild animals, fresh air and water.	Benguet village: Fruits, firewood, animals, birds eggs and quails' eggs, flowers, vegetables, herbal medicine, water and soil.	Benguet village: Lumber, root crops, water, irrigation, food, animals, grass, fuel wood, and produce (rice and vegetables) from slash-and-burn farming.
Masbate village: Water, fuel wood, lumber, fruits and plants.	Masbate village: Wild animals, lumber and fuel wood	Masbate village: Lumber, fuel wood and water	Masbate village: Lumber, fuel wood and fruits.	Masbate village: Firewood, lumber for building houses and the school, wood to make tables and chairs, and fruits.	Masbate village: Lumber, fuel wood and fruits.

3. If the size of the nearest forest has declined in the last five years, do you find you need more labour (children) to help with maintaining the household?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: They think they do not need more children to help with maintaining the household. Masbate village: All of the participants said no. One group said that since forest resources have declined, the more that you need fewer children. If before you did not buy fuel wood, now you have to do so.	Benguet village: All answered no. One group said there is no water any more, so there should be less children. Masbate village: All answered no. One group said there is nothing to eat any more. Besides, they have to work harder if they had more children.	Benguet village: Majority think their parents need more children to help in reforestation. Masbate village: All answered no. One group said since there is no forest there is less to eat.	Benguet village: They answered no or had no response. Masbate village: Majority answered no. One participant, however, said her parents may need more children to plant trees.	Benguet village: (Not asked) Masbate village: (Not asked)	Benguet village: Majority (seventy-five per cent of the participants) said not any more. Masbate village: All answered no.

4. What are the advantages and disadvantages of protecting the forests? Who should protect the forests? If it cannot be protected, how serious do you think would the condition of the forests be in the next five years (2002)?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Benguet village: They believe that the forests should be protected. Otherwise, the soils will erode, there will be 'flash' floods, the air will be warmer, there will be drought, the farmers will find it more difficult to work in the fields, and there will be no more source of livelihood. Majority think that the people should protect the forests and the government should support the people.	Benguet village: Lumber will decline. There won't be fresh air. It would be very hot. There will be a few fruits and wild animals. There will be no more water. Rivers will dry up. Soil erosion, floods, and drought will occur. Households will be affected. People will be hungry, get sick, or die. All think that the people should protect the forests.	Benguet village: Floods will occur. There won't be fresh air. The village will be like a desert because of the hot temperature. There will be no more water. Soil erosion and floods will occur. There will be no more alternative sources of livelihood. Incomes will be reduced. The next generation would not be able to appreciate wildlife. Majority said the people should protect the forests. One group pointed out that the youth should take care of the forests.	Benguet village: There would be landslides and floods. No more fresh air and wild animals, Water supply will be less. People will get sick. There would be less food. Plants, animals, and people will die. They believe people should take care of the forests. One group also mentioned that the youth should help in protecting the forests.	Benguet village: Fruits will be destroyed. Floods will occur and people will die. The people should protect the forests.	Benguet village: Floods and landslides will occur because soils will be eroded. Rice fields will be destroyed. There will be no more wood for building houses. No more water for people and animals to drink and people and plants will die. They said the people in the village should protect the forests.

Continuation -What are the advantages and disadvantages of protecting the forests? Who should protect the forests? If it cannot be protected, how serious do you think would the condition of the forests be in the next five years (2002)?

Fathers	Mothers	Eldest Never Married Sons	Eldest Never Married Daughters	Younger Children	Grandparents
Masbate village: No more water and wild animals. There will be hunger and people will die. Floods will occur. Soil will lose its vegetation. Half of the fathers think that the people living in the village should protect the forests while the other half believed it is the government who should pay somebody to protect the forest land.	Masbate village: Less food, lumber and fuel wood, fewer rains, warm air, floods will occur, no more water and people will die. Majority of the mothers (sixty per cent of the participants) think that the government should protect the forests while the rest believe that either the people living in the community or those who live near the forests should protect it.	Masbate village: Surroundings will be ugly. There will be no fresh air instead there will be warm temperature. There will be no more protection from the typhoons. Floods will occur and people will die. Half of the participants think that the government should protect the forests while the other half said that the people living in the village, particularly the youth should protect the forests.	Masbate village: The village will be ugly and there will be no more wood, houses and water. The people should protect the forests. One group said that the youth should plant trees because their parents are already old and so they cannot plant trees any more.	Masbate village: They said that for them to be able to build more houses and to have firewood and water the people should protect the forest.	Masbate village: The government and the whole community should protect the forests. Otherwise, the climate will be warmer, there will be less water and there will be drought, and they will not have a source of fuel wood, lumber, and fruits any more.

Annex 10
(Chapter 5)

This Annex describes the variables used in the regression models with their sources of data placed in parenthesis.

INFMORT	=	Infant Mortality Rates; the number per 1,000 live births that did not reach the age of one (1) in 1991 per province (DOH 1991)
CMORT	=	Child Mortality Rates; the number per 1,000 children that did not reach the age of five (5) in 1991 per province (DOH 1991).
FERT	=	Fertility rates in 1990 per province (NSCB 1995a)
MWB	=	Morbidity resulting from water-borne diseases per 100,000 population in 1991 per province (DOH 1991)
$NMIG_i$	=	Net Migration Rates; the proportion of net migrants (in-migrants less out-migrants) to total population in 1991 per province (NSCB 1991)
$POVI_i$	=	Poverty incidence in 1991 by province (PCFP 1995)
FAMEXPH	=	Average family expenditures on health in 1991 per province (NSO 1994b)
MAL	=	Malnutrition rate in 1990 per province (PCFP 1995)
AGEFEM	=	Average age at marriage of female population in 1990 per province (NSO 1993)
FLIT	=	Functional literacy rate in 1989 per province (DECS and NSO 1989)
FEMLIT	=	Female basic literacy rate in 1991 per province (NSO 1992)
MALIT	=	Male basic literacy rate in 1991 per province (NSO 1992)
FEMALIT	=	Combined female and male basic literacy rate in 1991 per province (as computed)
ILLIT	=	Illiteracy rate in 1990 per province (PCFP 1995)
ACADEG	=	Proportion of persons 25 years old and over with academic degree (NSO 1993)
ELEC	=	Proportion of households with electricity in 1990 per province (NSO 1993)
POT	=	Proportion of households with potable water in 1990 per province (NSO 1993)
SAN	=	Proportion of households with sanitary toilet facilities in 1990 per province (NSO 1993)
NAGL	=	Proportion of the labour force in the non- agricultural sector in 1990 per province (NSO 1993)
DEPR	=	The average dependency burden ratio in 1990 per province; the number of household members less than or equal to 14 years old plus those above 65 years old divided by the number of persons in the household (NSO 1993)
HSIZ	=	Average household size in 1990 per province (NSO 1993)
URB	=	Proportion of households living in an urbanised area in 1990 per province (NSO 1993);
LANFO	=	Proportion of total area of farms in the province in 1991 which were fully-owned and operated and not tenanted (NSO 1994a)
IRRIG	=	Proportion of arable land in the province in 1991 which is irrigated (NSO 1994a)
POPDEN	=	Population density; population per square kilometre (NSO 1993)
DIST	=	Dummy variable for distance. The variable takes a value of 0 if the province is located in Luzon (except for Mindoro and Palawan which takes a value of 1 because of their relatively longer distance from MetroManila as compared to the other provinces within the Luzon island); 1 if in the Visayas; and 2 if in Mindanao.
ROADEN	=	Road density per province (DPWH 1991)
PAVRODEN	=	Paved road density per province (DPWH 1991)
D	=	Regional delineation from 1 to 13 (NSO 1993)

Table 2. Correlation Matrix

	logINFMORT	logCMORT	FERT	LogMWB	NMIG	POVI	FAMEXPH	MAL	AGEFEM	FLIT
logINFMORT	1.000									
logCMORT	0.994	1.000								
FERT	0.358	0.376	1.000							
logMWB	0.146	0.140	0.174	1.000						
NMIG	-0.102	-0.105	-0.033	-0.073	1.000					
POVI	0.171	0.166	0.241	0.054	0.116	1.000				
FAMEXPH	-0.264	-0.254	0.188	-0.016	-0.116	0.294	1.000			
MAL	0.455	0.448	0.442	0.183	-0.074	0.236	0.063	1.000		
AGEFEM	-0.362	-0.351	-0.042	-0.036	0.039	-0.340	0.129	-0.235	1.000	
FLIT	-0.602	-0.596	-0.021	0.004	0.090	-0.274	0.204	-0.301	0.413	1.000
FEMLIT	-0.560	0.569	0.207	-0.137	0.072	-0.215	0.284	-0.086	0.366	0.698
MALIT	-0.635	-0.519	0.112	-0.134	0.062	-0.284	0.300	-0.191	0.407	0.739
FEMALIT	-0.602	-0.573	0.165	-0.137	0.068	-0.250	0.295	-0.136	0.390	0.726

Continuation of Table 2. **Correlation Matrix**

	logINFMORT	logCMORT	FERT	LogMWB	NMIG	POVI	FAMEXPH	MAL	AGEFEM	FLIT
ILLIT	0.597	-0.530	-0.174	0.133	-0.067	0.236	-0.294	0.136	-0.404	-0.730
ACADEG	-0.537	-0.609	-0.179	-0.137	0.156	-0.508	0.040	-0.406	0.073	0.590
ELEC	-0.769	-0.763	-0.462	-0.183	0.099	-0.431	0.059	-0.435	0.500	0.636
POT	-0.545	-0.533	-0.105	-0.088	0.133	-0.390	0.036	-0.291	0.587	0.659
SAN	-0.512	-0.500	-0.189	-0.118	0.058	-0.383	0.069	-0.412	0.527	0.645
NAGL	-0.636	-0.640	-0.098	-0.209	0.026	-0.343	0.281	-0.118	0.440	0.468
DEPR	0.480	0.477	0.814	0.199	-0.073	0.450	0.180	0.553	-0.451	-0.269
HSIZ	0.165	0.170	0.140	-0.076	0.027	0.215	0.006	0.172	-0.252	-0.266
URB	-0.576	-0.578	-0.402	-0.178	0.210	-0.435	-0.045	-0.259	0.257	0.499
LANFO	0.361	0.352	-0.271	0.062	0.074	-0.064	-0.347	-0.077	-0.364	-0.442
IRRIG	-0.098	-0.087	-0.282	-0.041	-0.139	-0.279	-0.023	-0.041	0.037	0.024
POPDEN	-0.528	-0.529	-0.364	-0.442	0.025	-0.316	0.071	-0.244	0.419	0.268
DIST	0.377	0.356	0.053	0.016	0.156	0.359	-0.066	0.017	-0.337	-0.405
ROADEN	-0.020	-0.005	0.129	0.236	0.058	-0.068	0.112	-0.297	0.524	0.240
PAVRODEN	-0.336	-0.324	0.006	-0.005	0.049	-0.430	0.020	-0.224	0.704	0.461
D	0.368	0.353	0.065	0.137	0.103	0.285	-0.177	0.140	-0.337	-0.405

Continuation of Table 2. **Correlation Matrix**

	FEMLIT	MALIT	FEMALIT	ILLIT	ACADEG	ELEC	POT	SAN	NAGL	DEPR
FEMLIT	1.000									
MALIT	0.952	1.000								
FEMALIT	0.990	0.986	1.000							
ILLIT	-0.994	-0.974	-0.997	1.000						
ACADEG	0.485	0.547	0.520	-0.521	1.000					
ELEC	0.548	0.637	0.596	-0.587	0.739	1.000				
POT	0.560	0.585	0.579	-0.594	0.647	0.679	1.000			
SAN	0.643	0.645	0.651	-0.654	0.607	0.724	0.678	1.000		
NAGL	0.588	0.584	0.593	-0.591	0.632	0.671	0.506	0.469	1.000	
DEPR	-0.040	-0.119	-0.078	0.078	-0.528	-0.655	-0.390	-0.429	-0.290	1.000
HSIZ	-0.165	-0.204	-0.185	0.188	-0.086	-0.099	-0.314	-0.214	-0.052	0.177
URB	0.455	0.456	0.461	-0.459	0.531	0.693	0.551	0.483	0.646	-0.505
LANFO	-0.701	-0.631	-0.677	0.685	-0.208	-0.402	-0.408	-0.528	-0.402	-0.070
IRRIG	-0.010	0.099	0.041	-0.032	0.086	0.297	0.049	0.051	0.067	-0.224
POPDEN	0.258	0.276	0.270	-0.272	0.470	0.570	0.428	0.300	0.638	-0.501
DIST	-0.386	-0.494	-0.441	0.427	-0.336	-0.501	-0.431	-0.319	-0.367	0.203
ROADEN	0.079	0.097	0.088	-0.107	0.393	0.114	0.249	0.318	-0.023	-0.157
PAVRODEN	0.432	0.395	0.420	-0.446	0.562	0.504	0.654	0.543	0.497	-0.354
D	-0.474	-0.503	-0.494	0.484	-0.212	-0.431	-0.278	-0.480	-0.505	0.206

Continuation of Table 2. **Correlation Matrix**

	HSIZ	URB	LANFO	IRRIG	POPDEN	DIST	ROADEN	PAVRODEN	D
HSIZ	1.000								
URB	-0.084	1.000							
LANFO	0.161	-0.102	1.000						
IRRIG	0.088	0.108	-0.032	1.000					
POPDEN	0.013	0.583	-0.175	0.121	1.000				
DIST	0.399	-0.156	0.392	-0.395	-0.252	1.000			
ROADEN	-0.059	-0.130	-0.094	-0.075	-0.110	0.040	1.000		
PAVRODEN	-0.253	0.358	-0.385	0.061	0.486	-0.357	0.403	1.000	
D	0.336	-0.197	0.484	-0.234	-0.284	0.630	-0.039	-0.039	1.000

Annex 12
(Chapter 6)

This Annex describes the variables used in the regression models. All the data were derived from the survey of households I conducted in 1997.

H	= height-for-age score for child i; the difference between the actual height and the mean height-for age divided by the mean height-for-age
FEMED	= number of years of formal schooling of the child's mother
MALED	= number of years of formal schooling of the child's father
FEMALED	= the sum of the number of years of formal schooling of the child's mother and the child's father
AGE	= age of the child (in months)
SQAGE	= age of the child squared (in months)
CUBAGE	= age of the child cubed (in months)
AGEGAP	= the difference between the age of the eldest child and the youngest child in the child's family
NCHLD	= number of children in the child's household between the ages of 1 month and 60 months
GENDER	= gender of the child. Dummy variables used: A value of 1 if male and a value of 0 if female.
EGSTOVE	= use of electricity or gas as main source of energy for cooking in the child's household
FRIDGE	= use of refrigerator in the child's household. Dummy variables used: a value of 1 yes and a value of 0 if no.
ELEC	= use of electricity in the child's household. Dummy variables used: a value of 1 if yes and a value of 0 if no.
PWF	= use of private washing facilities in the child's household. Dummy variables used: a value of 1 if yes and a value of 0 if no.
TIME	= time from the nearest source of potable water to the child's household (in minutes)
NWAGE	= number of working-age members in the child's household who are likewise employed (in agricultural and/or non-agricultural work)
IRRIG	= use of irrigation facilities for farming by the child's household. Dummy variables used: a value of 0 if farmland is not irrigated and a value of 1 if irrigated.
LANO	= ownership of land used for farming. Dummy variables used: a value of 0 if household does not own the land being used for farming and a value of 1 if household owns the land being used for farming
HOUSE	= quality of housing floor. Dummy variables used: a value of 1 for a house with a cement floor; a house with a wooden floor a value of 2; one with a bamboo floor a value of 3; and a house with an earthen floor a value of 4.
INCOME	= nominal household income in 1996
PCAPINC	= nominal per capita income in 1996
FOC	= father's occupation. Dummy variables used: a value of 0 for fathers with no occupation; a value of 1 for fathers whose main occupation is agricultural in nature; and a value of 2 for fathers whose main occupation is non-agricultural in nature.
MOC	= mother's occupation. Dummy variables used: a value of 0 for mothers with no occupation; a value of 1 for mothers whose main occupation is agricultural; and a value of 2 for mothers whose main occupation is non-agricultural.
D	= village. Dummy variables used: a value of 0 for *Barangay* San Juan and a value of 1 for *Barangay* Nangalisan

Table 4. Correlation Matrix

	H	FEMED	MALED	FEMALED	AGE	SQAGE	CUBAGE	AGEGAP	NCHLD	GENDER	EGSTOVE	FRIDGE
H	1.000											
FEMED	-0.176	1.000										
MALED	-0.144	0.734	1.000									
FEMALED	-0.171	0.919	0.942	1.000								
AGE	-0.262	0.066	-0.091	-0.020	1.000							
SQAGE	-0.315	0.067	-0.096	-0.022	0.947	1.000						
CUBAGE	-0.322	0.059	-0.097	-0.027	0.862	0.977	1.000					
AGEGAP	-0.081	0.079	0.065	0.077	-0.249	-0.225	-0.196	1.000				
NCHLD	0.139	-0.190	-0.120	-0.164	0.177	0.171	0.154	-0.627	1.000			
GENDER	0.029	-0.086	-0.120	-0.112	-0.007	-0.001	0.0002	0.054	-0.055	1.000		
EGSTOVE	-0.139	0.181	0.103	0.149	0.052	0.126	0.163	-0.004	-0.106	0.065	1.000	
FRIDGE	-0.216	0.355	0.411	0.413	-0.087	-0.083	-0.071	0.187	-0.112	0.074	0.322	1.000
ELEC	-0.239	0.444	0.453	0.482	0.044	0.023	0.017	0.200	-0.213	-0.027	0.380	0.601
PWF	-0.158	0.368	0.490	0.466	-0.142	-0.123	-0.106	0.019	-0.045	-0.108	0.075	0.326
TIME	0.062	-0.271	-0.424	-0.379	0.149	0.162	0.159	-0.086	0.424	0.113	-0.169	-0.236
NWAGE	0.004	-0.170	-0.150	-0.171	0.200	0.195	0.179	-0.092	0.310	-0.047	-0.018	-0.129
IRRIG	-0.065	0.075	0.090	0.089	-0.194	-0.182	-0.166	0.028	-0.063	0.085	0.218	0.159
LANO	-0.041	-0.055	0.036	0.010	0.153	0.169	0.176	0.122	-0.143	-0.014	0.331	-0.006
HOUSE	0.225	-0.399	-0.482	-0.476	0.168	0.167	0.157	-0.136	0.226	0.083	-0.142	-0.404
INCOME	-0.198	0.034	0.029	0.034	0.242	0.249	-0.088	-0.027	0.014	0.075	0.265	0.403
PCAPINC	-0.230	0.058	0.052	0.059	0.216	0.233	-0.080	-0.013	-0.078	0.101	0.302	0.395
FOC	-0.003	0.465	0.485	0.511	0.038	0.044	-0.252	-0.037	-0.065	-0.145	0.111	0.228
MOC	-0.315	0.258	0.274	0.286	0.254	0.264	-0.151	0.107	-0.151	0.023	0.160	0.239
D	-0.098	0.404	0.560	0.524	-0.202	-0.200	-0.599	0.073	-0.066	-0.010	0.144	0.382

Continuation of Table 4. **Correlation Matrix**

	ELEC	PWF	TIME	NWAGE	IRRIG	LANO	HOUSE	INCOME	PCAPINC	FOC	MOC	D
ELEC	1.000											
PWF	0.453	1.000										
TIME	-0.366	-0.553	1.000									
NWAGE	0.106	-0.076	0.326	1.000								
IRRIG	0.281	-0.101	-0.274	-0.083	1.000							
LANO	-0.025	-0.647	0.122	-0.022	-0.083	1.000						
HOUSE	-0.647	-0.553	0.380	-0.046	-0.311	0.100	1.000					
INCOME	0.258	0.119	0.014	0.066	0.131	-0.021	-0.088	1.000				
PCAPINC	0.252	0.154	-0.090	-0.083	0.160	-0.006	-0.080	0.960	1.000			
FOC	0.302	0.438	-0.282	-0.043	-0.227	-0.038	-0.252	0.289	0.314	1.000		
MOC	0.411	0.367	-0.210	0.196	0.251	0.068	-0.286	0.158	0.179	0.107	1.000	
D	0.587	0.820	-0.581	-0.083	0.530	-0.138	-0.599	0.088	0.123	0.377	0.397	1.000

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